

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL MANUFACTURER, FORMULATOR AND DEALER

Published by The Miller Publishing Co., Minneapolis, Minn.

Vol. 5

Accepted as Controlled Circulation
Publication at Minneapolis, Minn.

JULY 21, 1958

Subscription Rates:
\$5 for 1 year, \$9 for 2 years

No. 29

Fall Fertilizer Recommendations Point to Sales in Midwest States

CROPS on soils in the midwestern states are for the most part adaptable to application of fertilizers in the off seasons. Consequently, recommendations made by state experiment stations seem appropriate under the concept of marketing and merchandising of not only fertilizers but many types of pesticides in the fall of the year.

The following information is gleaned from various experiment station reports, some from company bulletins, and others from individual agronomists contacted for information.

Wisconsin Story

PERHAPS the most outspoken personality in the country, when it comes to fall fertilization and the general use of nitrogen, is Prof. C. J. Chapman of the University of Wisconsin. The points he makes in establishing a case for fall fertilization, include the following:

1. More time and labor are available to get the job done.

2. Footing for tractors, spreaders and spreader trucks is unusually good and firm.

3. Flow of raw materials from the mines and chemical plants through the fertilizer factory is steady, not only relieving last min-

ute spring peak loads to the manufacturer, but also extending the rail and truck delivery period; which means savings passed on to the farmer.

4. The farmer is assured of getting the kind and amount of plant foods he needs.

5. Acute storage problems are lessened for the manufacturer and the dealer.

6. Plant food applied to grass and legume meadows in the fall is there ready to go to work when spring rains and warm weather "wake up" old fields.

Alfalfa, as an example, is a heavy (Turn to RECOMMENDATIONS, page 6)

Pyrethrum Extraction Plant Under Way For Ecuador Product

NEW YORK—A new firm has been incorporated in Ecuador to establish and operate a plant near Guito for the extraction of Ecuadorean pyrethrum flowers as a source of insecticides. The company, Inexa, Industria Extractora C.A. will be under the management of Dr. Luis Werner Levy who developed the process that will be used for extraction of pyrethrum near the point of production. The new plant is expected to begin operations in October or November of 1958, the firm has announced.

Ecuadorean production of pyrethrum is reported to be well established and the new firm expects to maintain a competitive position in the market when in operation.

The firm also reports that the Levy process is under option to the Mitchell Cotts group for use in East Africa which may begin production under the system later.

EDITOR'S NOTE



This is the second in a series of four special emphasis issues of CropLife in which the merchandising of fertilizers and pesticides on a year-round basis is given extra attention. This week's issue carries recommendations and comments on the application of fertilizers in the fall of the year in a number of midwestern states where soil and climate favor this type of operation.

On pages 12 and 13 are presented a number of sales and merchandising helps available to the trade to assist in publicizing the virtues of buying and applying plant food early. Posters, newspaper advertising mats, store displays, mailing folders and other items are described.

The issues of July 28 and Aug. 4 will carry additional articles and data on merchandising of fertilizers for the western and northeastern states, respectively.



Food Labels Need No Information on Use of Pesticides

House Committee Rules That Pesticides Are Not Food Preservatives

WASHINGTON — Pesticides used "in or on any raw agricultural commodity which is the produce of the soil" are not to be classified as chemical preservatives, according to the House Interstate Commerce committee which ruled on a question raised in a bill (HR 9521) to amend the definition of what constitutes chemical preservatives as referred to in the Federal Food, Drug and Cosmetic Act.

Since pesticides are not a preservative, members of the House committee opined that it should not be necessary for the fresh fruit and vegetable industry to inform the public on labels that the crop may have been treated to retard mold or to control other conditions.

Spokesmen here say that the ruling resulted from questions about whether a pesticide is a chemical preservative which requires mention on a label.

If a pesticide is used before a crop (Turn to FOOD LABELS, page 20)

Cornell University First Site of Safety Schools Scheduled for 5 Regions of U.S.

WASHINGTON—The first of five two-day regional accident prevention schools, sponsored by the Fertilizer Section of the National Safety Council with support of the National Plant Food Institute, will be held for the Northeast Region at Statler Hall, Cornell University Campus, Ithaca, N.Y., Aug. 14-15. The announcement was made by Paul T. Truitt, executive vice president of the Institute.

Stratton M. McCargo, G.L.F. Soil Building Service, a division of Co-op. G.L.F. Exchange, Inc., Terrace Hill, Ithaca, N.Y., will be in charge of the program which calls for registration

and distribution of materials at 9:30 Thursday, Aug. 14. The conference opens with George F. Dietz, general chairman of the fertilizer section, in charge, and an outline of plans for the course, by Robert F. Risley, coordinator of special programs, will be presented.

"The Supervisor as a Teacher and Leader" is the subject for Robert F. Risley, and "Know Your Accident Problems" will be discussed by E. O. Burroughs, Jr., insurance department, F. S. Royster Guano Co.

After lunch, William Creel, Department (Turn to SAFETY MEETING, page 21)

Inside You'll Find

For the Manufacturer:

News of the Trade	2-8
Insect, Plant Disease Notes	4
Pesticide Sales, Distribution	5
Fertilizer Recommendations for the Midwest	6
What's New	10
Industry Patents, Trademarks	18
Editorials	22
Meeting Memos	23

For the Dealer:

Over the Counter	9
Available Merchandising Helps	12-13
Farm Service Data	14
Why Some Customers Don't Come Back	15
What's Been Happening	16

FOR OFF-SEASON SALES . . .

Banks Important Link in Merchandising Plans

By Dr. O. B. Jesness*

Formerly Head of the Department of Agricultural Economics
University of Minnesota

THE PARTNERSHIP and mutuality of interests of farmers and bankers have increased with the passing years. Business supplied by farmers is vital to country banks and the credit and other services provided

by banks are essential to modern farming.

Farming is dynamic. A farm of today bears little resemblance to what it was when the pioneer wrestled with nature in carving it out of the wilderness. But one does not have to go back to homestead days to measure change. Anyone who revisits the home farm after having been gone only a few short years finds new operations, new machines and a greatly expanded and changed technical vocabulary.

The acid test of the early settler came in converting the raw prairie or timber land to fields. His wants were relatively few, and were met largely by his own direct efforts. Home slaughter, a few chickens for eggs and an occasional festive Sunday dinner, milk, home-churned butter, and home-baked bread from grist taken to a nearby mill, were the mainstays. Clothes were simple, and spinning, knitting and weaving were common household arts. The candle mold saw frequent use to save pennies spent for

kerosene. Taxes were modest in dollars but a real drain on their limited supply. Debt-carrying ability was small, and credit, if available at all, was very restricted. Visits by farmers at banks were few and far between.

Farming today is a far cry from that of old; so is banking service to farmers. Farming and banking have advanced hand-in-hand. As years have passed, the common in- (Turn to BANKERS, page 20)

*From article appearing in "Commercial West" magazine, May, 1958.

Kenneth D. Jacob Named to Receive AOAC-Wiley Award

WASHINGTON—Kenneth D. Jacob, chief, Fertilizer Investigations Research Branch, Soil and Water Conservation Research Division, U.S. Department of Agriculture, has been selected to receive the 1958 Harvey W. Wiley Award of the Association of Official Agricultural Chemists. This award was established in 1956 to honor the father of the original Pure Food and Drug Law and the founder of the association.

The award consists of \$500 which goes annually to the scientist who makes an outstanding contribution to the development of methods for the analysis of foods, drugs, cosmetics,

feeds, fertilizers, pesticides or for use in general analytical chemistry.

Announcement of the award was made by Frank A. Vorhes, Jr., director, Division of Food, Food and Drug Administration and president of the Association of Official Agricultural Chemists. Mr. Vorhes stated in notifying Mr. Jacob of his award:

"Your forty years of scientific service in the public interest has been impressively productive toward objectives of the association in the fields of fertilizer technology and analysis. Your contributions to understanding of the role of phosphates in fertilizer utilization have immeasurably benefited not only American agriculture, but the welfare of man throughout the civilized world. The fundamental principles you have elucidated for phosphate analysis of fertilizers furnish also the basis for methods applicable to many

other materials with which the association is concerned."

Mr. Jacob began his professional employment as a chemist in the Chemical Warfare Service of the army in 1918 and joined USDA and started his studies on phosphate fertilizers in 1919. Mr. Jacob received the superior service award of USDA in 1947, "for his research on world phosphate resources, technology and the initiation and use of the one-step thermal method of producing available phosphate material from raw phosphate." He has served the U.S. government on a number of occasions as member of technical missions and delegate to international conferences on fertilizers. He has published over 150 papers on methods for laboratory evaluation of fertilizers, agronomic evaluation of fertilizers, chemical composition and physical nature of natural phosphates, fertilizer technology, with particular emphasis on the solubilization of phosphate rock of thermofluorination, and resources, production, marketing, and uses of fertilizers.

Mr. Jacob was born at Carpenter, Miss., and attended high school at Lucedale, Miss. He graduated from Mississippi Agricultural and Mechanical College with a BS degree and received the MS degree in chemistry at the George Washington University. Mr. Jacob presently resides in Washington, D.C.



John R. Guttag

NPFI Names New District Representative

WASHINGTON—John R. Guttag has been named district representative of the National Plant Food Institute, effective Sept. 1, with headquarters at East Lansing, Mich., Dr. Russell Coleman, executive vice president of the Institute, has announced.

Mr. Guttag will report to Zenas H. Beers, Midwestern regional director of the Institute, at Chicago and will cover the states of Indiana, Kentucky, Michigan, and Ohio.

The new appointee received his B.S. degree in agriculture from Michigan State University and his M.S. degree from Iowa State College in soil science. He expects to receive his Ph.D. degree in soil science from Michigan State next year.

Previous employment includes service with the Michigan Conservation Dept. in land-use planning and survey. He joined the Michigan State University staff in 1951 as a full-time research instructor, a position he presently holds.

Equipment Reports Scheduled for Cotton Mechanization Conference

BROWNSVILLE, TEXAS—A roundup of the latest research on ground equipment for applying liquid chemicals will be given by four authorities at the Beltwide Cotton Mechanization Conference here Aug. 12-14.

Leading the discussion will be Rex F. Colwick, coordinator of the Regional Cotton Mechanization Project, State College, Miss. Other participants will be agricultural engineers at experiment stations in Mississippi, Louisiana and Texas.

Research on high clearance rigs will be covered by E. B. Williamson of the Delta Branch Experiment Station, Stoneville, Miss. Lambert H. Wilkes of the Texas Experiment Station, College Station, will discuss developments in nozzles, and Carl H. Thomas, Louisiana Experiment Station, Baton Rouge, will cover herbicidal equipment.

Equipment needs in another aspect of cotton production—disease control—will be discussed by Dr. Luther S. Bird, cotton pathologist at the Texas Experiment Station, College Station. This station has developed an effective in-the-furrow method of applying fungicides to control cotton seedling diseases. Dr. Bird will describe this method and outline needs for equipment to apply and mix the fungicide in the soil.

The National Cotton Council is sponsoring the conference in cooperation with the Farm Equipment Institute, U.S. Department of Agriculture, Cotton Belt land-grant colleges, Valley Farm Bureau, and other groups.

A REPORT
FOR YOU
FROM USERS OF
Hi-D®
AMMONIUM NITRATE

"Hi-D arrives dry and stays dry," says Dick Hitt, pilot.

"Put out several thousand tons of Hi-D this spring. Flows evenly from start to finish. Plane hopper holds up to 20% more material. Saves me air time. High-density Hi-D granules distribute evenly on the ground."

"The men all like the way Hi-D handles," reports Earl A. Johnson.

"We have about 1,400 Guernsey dairy cattle—one of the largest herds in the world. We like Hi-D because it arrives with no lumps. What we don't use at once stores very well. Hi-D throws nicely."

"Best moisture-proof bag I've ever seen," says E. G. Farand.

"Use Hi-D on Coastal Bermuda grass and corn, plus oats and rye in winter. A really free-flowing material, you never get too much or too little. Hi-D is always in good condition even after storing."

NEW GRANULE Hi-D

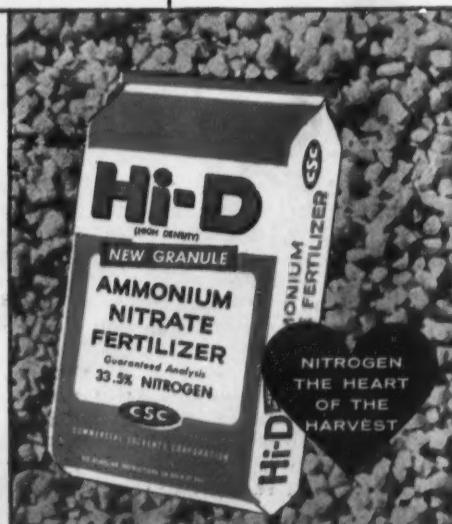
AMMONIUM NITRATE

Unique Shape • High Density •
Controlled Size • Free Flow •
Dry Flow • 2-Speed Nitrogen
Spreads Evenly • Stays Put •
Goes To Work Fast

NO OTHER

AMMONIUM NITRATE LIKE IT!

COMMERCIAL SOLVENTS CORPORATION
Sterlington, La., St. Louis, Mo.,
Atlanta, Ga., Terre Haute, Ind., Chicago, Ill.



Management Is Key To Pasture Profit

BROOKINGS, S.D.—Although many eastern South Dakota farmers are of the opinion that pastures in that area cannot produce sufficient income to make them profitable, a recent experiment at South Dakota State College indicates that these pastures will produce good income with proper management, even though rainfall may be below normal.

With careful management beef gains averaged 308 lb. per acre over a five-year period on alfalfa-brome pasture and 236 lb. per acre on straight brome pasture. Pastures were rotated every two or three weeks at the beginning of the season and every three to four weeks as the season progressed. Pasture growth was maintained at a minimum of three to four inches of forage.

Short season pastures of sweet clover and rye produced an average of 124 lb. of beef per acre and a sudan-soybean pasture produced 147 lb. of beef per acre. Although short season pastures produce less forage and beef per acre than the alfalfa-brome and brome pastures did, researchers point out that they utilize a shorter portion of the growing season. They also provide additional pasture during critical growing periods when forage on permanent and native pasture is low.

Aside from rotating livestock, all pastures were fertilized to maintain constant productivity. A fifty-pound application of phosphorus (0-43-0) was applied each year and the brome grass received an additional 100 lb. of nitrogen (33-0-0) in April and July each year.

During the five-year study, carried on from 1953 through 1957, annual precipitation was below normal each year except in 1953. Rainfall was five inches below normal in 1954, and seven inches below normal in 1957.



Dr. Edward J. Campau

ENTOMOLOGIST NAMED—Dr. Edward J. Campau has been appointed research entomologist for Eli Lilly & Co., Indianapolis, Ind. He will conduct research in developing and evaluating pesticides. Dr. Campau is a native of Michigan and holds degrees from Michigan State University, Stanford University, and a doctorate from the University of Wisconsin. Before joining Eli Lilly, Dr. Campau supervised pesticide research at the Standard Oil Co. of Indiana research laboratories at Whiting, Ind. He has contributed articles to a number of scientific journals and is active in several societies, including the Entomological Society of America.

Fertilizer Big Aid to Oregon Agriculture

CORVALLIS, ORE.—Use of more machinery and fertilizer and less manpower and horsepower is helping the state's farmers hold the line against rising costs, according to Mrs. Elvera Horrell, extension agricultural economist at Oregon State College.

Although last year's farm output was a third larger than in 1940, it was produced on the same acreage of cropland by fewer farmworkers and on fewer but larger farms, she noted.

Farmers have learned more about how to use commercial fertilizers in recent years, it is pointed out, and these fertilizers have become cheaper in relation to land and other costs of production. Fertilizer costs have gone up only about 6% in the last 10 years. Land values have risen about 40%, and

other production costs have gone up from 20 to 25%.

During the same period, new machines have been developed and old machines improved, eliminating the need for many horses and farm laborers, Mrs. Horrell noted. Wage rates paid farm workers have increased 30% in the last 10 years, but costs of operating farm machinery have gone up only about half that much. As a result, use of tractors and other machines has nearly tripled, while use of hired labor on farms has been on the downturn.

Savings from increased use of fertilizer and machinery have helped farmers meet the cost-price squeeze of the last few years, Mrs. Horrell said. Pricewise, most commodities grown in Oregon still average well below the level set by Congress as a "fair" exchange rate between prices received by farmers for the products they sell, and prices paid by farmers for the goods and service they must buy, she emphasized.

Gypers at Work In Grasshopper Area

DENVER—A plague of "gyp spray-ers" is accompanying the grasshopper invasion here, says Dan Bell, general manager of the Denver Better Business Bureau.

More than 200 phone calls were received by the Bureau in a recent week, many complaining about overpriced, worthless and sometimes injurious spray jobs perpetrated by itinerant sprayers who "just happen to be in the neighborhood."

Mr. Bell said the typical approach of a gyp sprayer is to drive into a residential neighborhood in a truck, tell a householder he has just completed a spray job for a neighbor and can do the job cheaper than usual since he is already in the neighborhood.

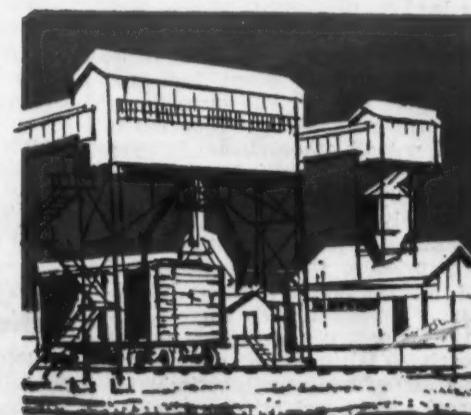
Croplife Want Ads... Get Results

FIRST check with **NATIONAL POTASH...**

Manufacturers of fertilizer can depend on NATIONAL POTASH for a coarse and standard grade muriate of potash.

- DUSTLESS
- FREE-FLOWING
- UNIFORM K₂O

Ample stocks and extensive storage and shipping facilities assure you of prompt delivery of both bulk and bagged potash even during the peak fertilizer season. In addition NATIONAL POTASH offers a Free Technical Service to aid fertilizer manufacturers. Telephone, wire or write us today.



**NATIONAL
POTASH COMPANY**

205 EAST 42nd ST. • NEW YORK 17, N.Y. • OREGON 9-4950
212 Bell Building • MONTGOMERY, ALA. • AMherst 5-8234

INSECT, PLANT DISEASE NOTES

Missouri Relatively Free Of Agricultural Insects

COLUMBIA, MO.—With the exception of corn borers in untreated fields, there are relatively few insects causing trouble on crops at this time. (July 12) However, in some gardens, particularly those which are close to pastures, grasshoppers are becoming a problem.

In several areas, the leaves on soft maple trees are being stripped by the green-striped maple worms. These insects have been showing up in some parts of the state nearly every year, and can be controlled by spraying.

Clay-colored leaf beetle—During the past couple of weeks, we have had several people send in clay-colored leaf beetles for identification. These beetles, about $\frac{1}{8}$ inch long, are light yellowish brown on the wing covers, or rear portion of the body, and a darker tan over the head and thorax, or front part of the body. They are being found working on mimosa, honey locust, and some ornamental shrubs.—Stirling Kyd.



Armyworms Mark Wisconsin Report

MADISON, WIS.—Armyworm moths since July 1 reflect a mass emergence according to blacklight insect trap catches, and numbers have been greater than at any time this season. The moths lay white bead-like eggs, smaller than a pin head in folded blades of grass or under the leaf sheaths of grains or grasses, which hatch in about a week. Hatching is well under way. The tiny worms are difficult to see. However, they grow rapidly, and frequent inspections of lodged or late grain and weedy corn are advised to forestall damage, should they become numerous.

Red spider (two-spotted spider mites and others) populations have been very high in many areas. Damage resulting from their feeding has recently become pronounced especially on ornamental evergreens such as arbor vitae, juniper and spruce. When heavily attacked, these ornamentals gradually change from dull green to an "almost dried-up" tan color. There are several ways to combat these mites, ranging from frequent, forceful spraying with water to the use of one of several effective miticides.

The highest armyworm catches yet recorded in blacklight insect trap catches in Wisconsin for one night occurred on July 4 at Platteville, when a sample count indicated $3200 \pm$ were caught. The same heavy armyworm moth flight is reflected in most if not all other blacklight trap catches between July 2 for Rochelle, Ill., and July 7 for the more northerly and easterly located traps in Wisconsin. Smaller catches of moths immediately prior to this were worn and spent, but the moths in these July 2-5 catches appeared newly emerged indicating new generation. It is yet too early to tell whether the parasite population which usually eliminates outbreaks will be plentiful enough to cope with armyworm populations in all localities.

Pea aphid counts in peas were mostly low, but some scattered fields with higher populations will probably need treating. The marked drop in aphid counts noted in fields appears to be due to diseased aphids observed. The pea aphid population is very spotty and individual fields need frequent checking.

Grasshopper populations in general

remain low, but warm weather following the rain has accelerated hatching of red-legged grasshopper eggs. Fields of alfalfa with significant populations are few, and counts ranged as high as 27 nymphs per square yard in a Winnebago county field. Fields with significant counts were few and limited to counties with light soil, but this may be changed and a close watch for newly hatched nymphs is advised in alfalfa growth.

Both potato leafhopper nymphs and adults were present in northeastern alfalfa fields, but in very low numbers—never exceeding 5 per 100 sweeps.

Observations during the past week at Madison as oat fields began to ripen show relatively low aphid populations. Green bugs were found in several locations, but colonies remained small. Trapping indicates increased flight activity of the corn leaf aphid, but almost no pea aphid flight was noticed. Corn leaf aphid is commonly present on barley. There is a considerable number of peach aphids. Populations of other aphids remained high on host plants. Syrphid fly larvae were found to be common predators.

Leafhoppers on Increase In Alfalfa Fields

URBANA, ILL.—Insect pests of field crops are generally low in number. Except for occasional fields, there is no cause for alarm or reason for treatment at this time. However, grasshoppers continue to be present in light to moderate numbers concentrated in fencerows, roadsides, grass waterways and ditch banks. In a few instances marginal rows of soybeans and corn are being attacked. In southern Illinois occasional hay fields have moderate to heavy infestations.

Leafhopper populations are increasing in alfalfa fields throughout the state. It appears that second-cutting alfalfa will escape injury, except possibly in extreme northern Illinois, but damage could occur on much of the third-growth alfalfa.

Garden fleahopper is present in moderate numbers in some clover and alfalfa fields in the southern part of the state. Little is known about the extent of damage this insect causes or the benefits from treatment.

During this past week cattle began noticeably to fight flies. Horn flies and stable flies are abundant. Because one stable fly per animal reduces milk production by 0.7%, there is much to gain by controlling this pest. An automatic treadle sprayer is a convenient way of applying repellents for both beef and dairy establishments.

Mosquitoes are getting worse. The wet weather during the past month has provided ideal breeding conditions. To lessen the problem, reduce the breeding areas around your home by getting rid of stagnant water, no matter how small the quantity. Hundreds of mosquitoes can breed in only a few ounces of water in an eave trough, tin can, barrel, tire, children's toy or similar places.—Steve Moore.

Heavy Rains Affect Pesticide Application

VINCENNES, IND.—Excessive rainfall occurred throughout the period of July 9-15. This has caused streams to overflow in the area and has made it difficult for growers to maintain spray covers on their apples and peaches. Difficulty has also been experienced in applying sprays because of the mud.

Fruit, in general, looks good in spite of the rains. Early apples and peaches of excellent quality are being harvested. Red Haven peaches are now ready for market.

Insect activity in the area continues

to be very light. European red mite populations are building up in some orchards and should be checked carefully in order to prevent mottling of the leaves. Second-brood codling moth activity has been extremely light to date. Codling moth sprays should be renewed as soon as the weather settles so that a cover spray can be made.

At present there is little insect activity in peach orchards.—D. W. Hamilton.



Corn Borer, Other Pests Noted in Iowa Report

AMES, IOWA—In north central Iowa, there are fewer than half as many plants infested with corn borer, and only $\frac{1}{4}$ as many borers per 100 plants as in 1957. But larval development is quite similar to or ahead of 1957. In Boone County and on the Ankeny farm infestation and larval development are very close to those in 1957.

Chemical control of first brood borers can still be profitable as long as a high percentage of borers are in whorls and under leaf sheaths—not tunneled into mid-ribs of stalks. Continue to use leaf feeding as the yardstick but cut up an infested plant to determine location of borers before you treat.

Garden webworm reported from Jefferson County in soybeans and alfalfa. The worms are green with 3 black spots in a triangle on each side of the back on each segment. They web the leaves together and feed inside this web.

Bean leaf beetles are still chewing holes in soybean leaves in the southern half of Iowa. The adults are hard to find, but they are present in the fields. No control is needed.

Thistle caterpillars are eating Can-

ada thistle in northern Iowa, but they won't kill the thistles. These larvae are 1 to $1\frac{1}{2}$ inches long, dark with many spines. They web leaves together and feed inside the web. When the thistles are eaten, the caterpillars will feed on soybeans.

Pea aphids are abundant in northwest Iowa, and meadow spittle bug adults were present in small numbers in birdsfoot trefoil at Colorado. They were reported as abundant in corn fields and in oats in Clayton County and in a nursery at Charles City. Chemical control is not recommended at this time.

Potato leafhoppers are present in small numbers (5-6 per 10 sweeps) in alfalfa. Last year they were very abundant at this time, averaging 5 or more per sweep and sharply reducing growth of second crop alfalfa.

Stable fly populations are increasing. There is a great deal of evidence that this species reduces gains in beef cattle and milk production in dairy herds. The control program must include (1) Regular removal of breeding places—wet straw, hay and manure. (2) Residual treatment of fences, outside walls and brush where adults rest and (3) Daily applications of repellent sprays.—Harold Gunderson.

Plant Disease, Insects Hit in Massachusetts

AMHERST, MASS.—Rains last week (July 14) washed off much of the deposit of fungicides on apples. In orchards where there is some scab, fungicides should be replaced to prevent scab build-up which may cause serious late-season infections.

Apple powdery mildew continues to be active. Where it is present, treatments should be made at intervals of 10 days or less. In orchards where there is no mildew, watch for it and start treatments when it is found.

First brood codling moth is now through egg laying and hatching except in the latest orchards. Farmers should look over trees carefully to find wormy apples. Finding these, means the first brood protection was not good enough and that some sec-

(Turn to INSECT NOTES, page 17)

INSECTICIDE FORMULATORS WATCHING . . .

Many Factors Affect Prices And Distribution Pattern of Pesticidal Materials in 1958

By Melvin Goldberg
Pesticide Advisory Service
New York

THE real effect of weather on the sale and distribution of pesticides is well illustrated by the situation that existed in farm areas in the middle of July, 1958. The real influence of a late wet spring, causing delays in planting and in some instances the necessity for replanting coupled with somewhat severe economic conditions because of the influence on the soil bank program, serve to illustrate the perils of the insecticide manufacturer and marketer.

In a normal season, the formulators in local areas know by the early part of July exactly where they stand in relation to their sales production and what kind of season they are going to have. However, because of a very late warming period, complicated by much rain in the late spring and

early summer, the marketing conditions of the industry this year will be delayed quite perceptibly.

Not only has this had an untoward effect on the marketing and distribution of pesticides, but it has also raised some very serious problems in the control of grasshoppers, which are affecting seriously millions of acres in the midwest and south midwestern areas of the U.S.

Although most formulators who cater to control of the grasshopper infestation are benefiting to some extent, the marketing plans of their other divisions and other companies within the industry are knocked pretty much into a cocked hat this year because of unusually heavy and late demands for products. This has proved to be both expensive and may well spell an unusually profitless season because of delays in buying and necessity of maintaining plants in operating condition later than usual.

The greatest potential plague that has hit the American insecticide industry since 1930's is the "literal trillions of grasshoppers" that are



Melvin Goldberg

incubating in the pasture and farm country of West Texas, Oklahoma, eastern Colorado, western Kansas, and northern New Mexico.

As this is written, the plague of grasshoppers, which is probably the worst in nearly 20 years, will probably affect between 10 and 15 million acres of land. Although the U.S. Department of Agriculture emphasizes that this year's infestation does not compare in size with those of the late and middle '30's, the governors of the various states affected think that it is far more serious.

It was estimated in 1936 that grasshoppers that year attacked U.S. crops worth over \$128,000,000 and destroyed almost \$102,000,000 worth of them. Thus in 1936, when modern day insecticides were not available, it was estimated that but \$26,000,000 worth of crops was saved.

However, it is felt that in 1958, the main trick in killing grasshoppers is getting them while they are "young" with aldrin, heptachlor and dieldrin, chlorinated hydrocarbons now available. The whole plan of control is to get the grasshoppers in their 5 initial stages (instars) before they acquire wings.

Although a great deal of damage can still be done in the initial stages, the real devastation comes when the grasshoppers find their wings and go on to do their major damage.

As of the moment, there are over 50 large spray planes flying throughout the vast areas, attempting to kill the grasshoppers in the initial stages. It is estimated that there are over 1 million lb. of technical chemicals contained in over 8 million gallons of finished insecticide being used in this control program.

The major reason for the 1958 plague is based, according to most industry observers, on two factors: The first of which is the cool, wet spring, the kind that delays the hatching of the grasshoppers. After the hatch began, several weeks of continuously warm, dry weather assured the survival of a big population of the young grasshoppers.

The second factor, one that the Federal Government generally will not agree to, is that in the affected areas, there are millions of acres of land with federal encouragement under the soil bank that have been reverting from field crops to grass. The grassy condition is the one in which most grasshopper eggs are laid and in which they thrive and survive.

Many of the governors of the states most affected are asking for disaster areas to be proclaimed in these infected sections, but to date, the President with the backing of the USDA, has declined. However, there is federal as well as state money backing this drive, together with the contributions made by individual farmers and counties.

Thus far, this year appears in other areas, to be a rather heavy one for insect damage, with the European corn borer heavier than normal in the midwest, and the boll weevil, as of this writing, threatening to become a problem in the Delta area. At the same time, chinch bugs are attacking cereal grains in Oklahoma, Kansas and Missouri. In the far west, the beet leafhopper, which carries a plant virus fatal to beets and tomatoes, is present in rather heavy numbers; in fact, the heaviest since 1926, according to some industry observers.

It also appears that the cotton crop for 1958 appears to be one of the smallest in the last few years. Although the crop is 2 to 3 weeks later than usual, on the basis of preliminary reports by the USDA which placed the area planted to cotton on July 1st as at 12,402,000 acres, the consensus in the cotton trade is that the crop will total only about 10 million bales. The 1957 total crop was only 10,984,000 bales.

From Texas eastwards, which constitutes the old cotton belt, production in 1958 may be at the lowest level in many years. Because of the large acreage put into the soil bank, the area in the eastern section planted in cotton, probably is the smallest since Civil War days.

However, California, Arizona and New Mexico will probably have record crops, judging from their progress to date. In fact, California and Arizona will probably show an increase in output above that in 1957. At the same time, because of the wet and cool spring, not only is the crop in the Delta later than usual, but heavy rains over most of the states there have further handicapped those farmers in cleaning their fields and holding the boll weevil in check.

It appears right now that the chlorinated hydrocarbon manufacturers are having a banner year, but this could stop quite suddenly if the

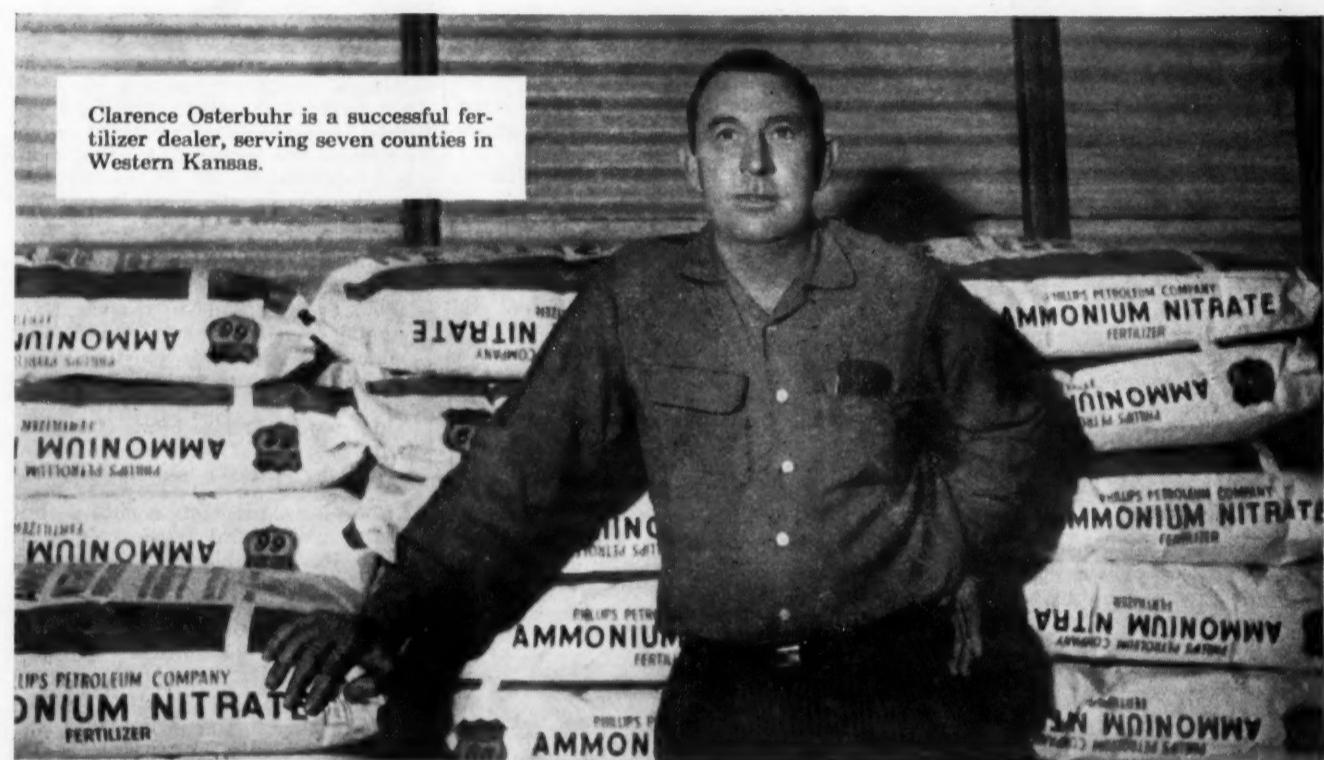
weather should make a change in killing the insects or the farmers may give up on the idea of control. However, as of the moment, this appears still to be a banner year for the insecticide formulators and marketers in these areas.

An announcement was made recently by one benzene hexachloride producer, lowering the price per gamma down to $\frac{1}{4}$ ¢ instead of the previous .85¢ per gamma. The increased price had been established as of April 1, but possibly due to slower movements of this product in the cotton areas this year, the price decline was brought about. There is also the further reason that BHC producers are struggling to retain markets where organic phosphate materials and other chlorinated hydrocarbons are moving ahead.

A major producer of technical grade DDT announced an increase in

the price of DDT for export effective July 1. Previously, in order to meet foreign competition, the U.S. export price was always 1¢ a pound below the domestic price. However, with increased demand for DDT this year due to the large malarial program as well as the possibility of a comparative domestic shortage, this increase in the price of DDT was brought about in order to take advantage of the increased demand.

Export demand for DDT formulations for malaria control during the next government fiscal year is estimated to be 75 million pounds. This will be a substantially greater quantity than was used in previous years and domestic producers of technical DDT are getting geared for this increase in demand. It is expected that this government buying will start sometime in the early fall of 1958 and will run until the end of the government fiscal year which is June 30, 1959.



"My Customers Prefer Phillips 66

Ammonium Nitrate"—

Clarence Osterbuhr
ANAMO CO., INC., Garden City, Kansas



Proof of performance: Users of new Phillips 66 Ammonium Nitrate find it easier to handle . . . the result of an exclusive Phillips 66 process that gives hard, dry and uniformly round prills. Stores better, flows more freely, spreads more uniformly.

Mr. Osterbuhr says: "We serve an area where the farmers have a comparatively long experience with nitrogen fertilizer. That's why I'm particularly pleased to offer Phillips 66 Ammonium Nitrate to my customers. Its uniformity and its exceptional free flowing qualities make it a favorite with farm users who expect the best."

The outstanding performance of Phillips 66 Ammonium Nitrate is winning new customers for other dealers, too. Their farm customers like its ease of handling and uniform spreading, which helps give better yields.

Dealers appreciate the extras in the Phillips 66 program . . . consistent, convincing advertising of Phillips 66 Ammonium Nitrate in leading farm papers, personal service from Phillips 66 field men, and prompt deliveries which help dealers sell more, profit more. Order your supply of Phillips 66 Ammonium Nitrate today.

PHILLIPS PETROLEUM COMPANY

Phillips Chemical Company, a Subsidiary, Bartlesville, Oklahoma

Offices in:

AMARILLO, TEX.—First Nat'l Bank Bldg.
ATLANTA, GA.—1428 West Peachtree Street, N.W.
Station "C" P. O. Box 7313
BARTLESVILLE, OKLA.—Adams Bldg.
CHICAGO, ILL.—7 South Dearborn St.
DENVER, COLO.—1375 Kearney St.
DES MOINES, IOWA—6th Floor, Hubbell Bldg.

HOUSTON, TEX.—6910 Fannin Street
INDIANAPOLIS, IND.—3839 Meadows Drive
KANSAS CITY, MO.—201 E. Armour Blvd.
MINNEAPOLIS, MINN.—212 Sixth St. South
NEW YORK, N.Y.—80 Broadway
OMAHA, NEB.—3212 Dodge St.
PASADENA, CALIF.—317 North Lake Ave.

RALEIGH, N. C.—401 Oberlin Road
SALT LAKE CITY, UTAH—68 South Main
SPOKANE, WASH.—521 East Sprague
ST. LOUIS, MO.—4251 Lindell Blvd.
TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Utica Square
WICHITA, KAN.—501 KFH Building



Fertilizer Recommendations Indicate Larger Potential Market in Midwest States

(Continued from Page 1)

feeder on potash and in many of the northern states, mixtures rich in this element are recommended. A 0-10-30B is a popular grade for top dressing old alfalfa stands. Boron deficiencies have become more and more widespread in recent years, Prof. Chapman says.

Alfalfa yields and longevity of stand may be materially benefited from the application of boron, he adds. This will frequently increase alfalfa seed production even though there may not have been any foliar evidence of a deficiency of this element.

When it comes to application of nitrogen for grass pastures or for old, runout alfalfa-brome-timothy fields, Prof. Chapman says that top dressing late in the fall with nitrogen fertilizers gets results equal to spring application. "In fact," he says, "in some of experimental and demonstration plots, we have shown some advantage for fall application. Applied at rates of from 400 to 600 lb. an acre, 10-10-10 has doubled and even trebled the production of grass in pastures the following spring."

Comparisons were also made of fall vs. spring applications of 12-12-12 fertilizer on a number of farms in Wisconsin. In many of these tests, the profit per acre was significantly greater on fall fertilized land.

On one farm, at Lake Mills, Wis., 500 lb. of 13-13-13 applied in the fall brought a net profit per acre of \$65.96. The same amount of fertilizer of the same grade, applied in the spring brought a net profit per acre of \$32.75. The average for all fall applications on the five farms included in the test, was \$59.49 as compared to \$45.13 for the average of all spring applications of fertilizers.

Although there is some danger of losing part of the nitrogen by leaching if applied on sandy soils, the heavy soils predominating most of the northern states offer very little danger of losing nitrogen especially where applications are de-

layed until mid-October or later, or when the temperature of the soil drops to 55° F. or lower.

Nitrogen applied as a broadcast treatment and plowed under with crop residue such as cornstalks, grain stubble or weeds will hasten the rotting of this decomposable organic matter, and the nitrogen will be largely converted into a form that is not leachable.

Prof. Chapman, in commenting on the use of anhydrous ammonia or low pressure nitrogen solutions knifed into the moist clay loam soils in the northern states, says it stores well and is cheaper storage than in other types of tanks. It can be cut or knifed into grass pastures, hay meadows or stored in fall-plowed fields which are to be fitted for grain, corn, or other crops the following spring. "Store it in the soil" are five words that pack dollars into savings for farmers, Prof. Chapman insists.

Nebraska Recommendations

IN Nebraska, a time-table for commercial fertilizer application has been prepared by G. W. Lowrey of the agronomy department of Nebraska, Lincoln. He notes that the soils of Nebraska are usually well supplied with potash and consequently, most of the recommended grades contain little or none of that element. For alfalfa and clover, he recommends the diskng in of phosphate before seeding, and top dressing old stands with phosphate in the fall of the year (August to December). During this same period, nitrogen and phosphate can also be disked in before seeding.

For warm season grasses, phosphate can be top dressed on old stands in September, October, November and December.

For cool season grasses, fall application of nitrogen should be made in October and November, and phosphate should be disked in before seeding and old stands top dressed with phosphate.

For oats and barley, fall application of nitrogen is recommended for October, November and December.

Wheat and rye should be top-dressed with nitrogen, and phosphate added with seed or disked in before seeding. Nitrogen plus phosphate should be disked in also before seeding.

For corn and grain sorghums, fall application of nitrogen is recommended for the months of October, November and December.

In an article on fertilizing fall planted crops, H. F. Rhoades, agronomist at the Nebraska Agricultural Experiment Station, U.S. Department of Agriculture, says that nitrogen fertilizer is the element most likely to be needed by the fall-planted crop. This need, he says, is determined by the capacity of the soil to produce adequate quantities of available nitrogen which in turn is related to the length of time the land has been cropped without growing a legume or receiving an application of manure. Phosphate fertilizers should be applied to many soils, he says, especially for small grain and legume crops.

Phosphate supplements have increased crop yields on the acid uplands and terraced soils of eastern Nebraska, on the calcareous soils of northeastern Nebraska, on the calcareous terrace and bottom land soils of central and western parts of the state, and on the sandy soils of most sections of the state.

Calcium is deficient for the production of legume crops on the acid



uplands and terrace soils in the eastern part of the state. Liming these soils is especially important when legumes are included in the cropping system to aid in maintaining an adequate supply of nitrogen in the soil, he says.

For winter wheat, phosphate and nitrogen fertilizers should be applied to most soils in eastern Nebraska and nitrogen fertilizers should be applied to most soils in central Nebraska for the best production of this crop. (Highly variable results have been obtained from the use of fertilizer in western Nebraska, the report says.)

Phosphate fertilizers should be applied where needed at the rate of 20 to 30 lb. available phosphoric acid per acre with the seed at planting time. The best method of applying phosphate is with a combination fertilizer-grain drill or with a fertilizer attachment on a grain drill.

Nitrogen may be applied where needed either in the spring or fall at the rate of 30 to 40 lb. nitrogen an acre.

Although there are many arguments for spring application, there are also some definite advantages for applying nitrogen fertilizer in the fall either before or after planting. Nitrogen fertilizer is generally more available in the fall than in the spring. In addition, more time is available and application is easier in the fall.

Fall Application Suggested

THE soils of North Dakota are also adaptable for the most part to fall fertilization. Ralph A. Young, associate soil scientist at the North Dakota Agricultural College, Fargo, states that where nitrogen fertilizer is used at moderate to heavy rates, much of it should be broadcast rather than applied in the row to avoid seed germination injury. Since broadcasting in the spring requires an extra operation in a busy season, spreading fertilizer in the fall gives a desirable distribution of labor. The quantity of fertilizer handled at seeding time may be reduced by fall application, thus speeding up planting operations. Fertilizer often can be purchased at a saving in the fall, he adds.

Application of nitrogen on non-fallow land in the fall is described as a good practice by Mr. Young. In areas of high rainfall available forms of nitrogen may be leached into lower depths or even below the root zone. However, because of low precipitation in fall and winter, leaching is a minor problem in North Dakota. Use of ammonium form of nitrogen, rather than nitrate, applied in the late fall when soil temperature is low, reduces chances of loss by leaching.

In fact, bacterial conversion of nitrate to nitrogen gas is known to occur. It is favored by poor aeration, warm temperatures and other factors favorable to the growth of bacteria. Loss in this way can be reduced or stopped by applying the material in late fall.

Loss by erosion or run-off of applied nitrogen can occur from sloping land. Low precipitation in late fall in North Dakota reduces the importance of this problem. Working the fertilizer into the soils after spreading should also reduce loss.

It is thought that loss or reduced efficiency from all the processes mentioned usually will be small, and late fall application of nitrogen fertilizer is an acceptable practice in North Dakota.

Mr. Young tells of nine field experiments conducted in the state in 1957. The objective was to determine with more certainty whether or not fall application is a desirable practice and which form of nitrogen is best for North Dakota conditions.

Two forms of nitrogen were applied, ammonium and nitrate. Rates of application were 0, 30, and 60 lb. nitrogen an acre in the fall after soil temperatures had dropped to 55° F., and in the spring just before final seed bed preparation.

All the sites receive their broadcast application of 0-30-15 fertilizer and 0-46-0 was used as a row application to insure adequate phosphorus and potassium fertility. Measurements included yield of all crops and test weights of the small grains.

Results of these trials indicated that 70% of the crops gave profitable increases in yields from the use of nitrogen fertilizer. In the 34 trials where several rates of nitrogen were applied, those from 40 to 60 lb. were the most profitable in 12 trials; rates of 20 and 30 lb. gave the greatest return in 12; and in the remaining 10, the use of nitrogen was not profitable. It appeared that response to nitrogen varied not only from soil to soil but also from year to year, probably because of differences in fertility status, management history and climatic conditions.

Because over 70% of the trials showed profitable responses and about ½ needed rates of 40 lb. nitrogen or more for maximum profit, it appears that nearly all non-fallow land in the state should receive at least moderate rates of nitrogen fertilizer every year.

The overall findings indicated that fall application of nitrogen fertilizer appeared as good as spring applica-

from plowing to harvest time

SPRAYING SYSTEMS

TeeJet SPRAY NOZZLES

SOIL FUMIGANTS
TeeJet Flow Regulators for depth application and surface streaming.

LIQUID FERTILIZERS
BoomJet Spray Nozzles...for broadcast application.

WEED CONTROL
TeeJet flat spray Nozzles, for uniform controlled coverage.

INSECT CONTROL
TeeJet Spray Nozzles with ConeJet or Disc Type tips.

Choice of over 400 interchangeable orifice tips for every farm need. For information, write for Catalog 30.

SPRAYING SYSTEMS CO.
1214 RANDOLPH ST. • BELLWOOD, ILL.

A PROVED AND DEPENDABLE SOURCE OF SUPPLY

tion. In only 1 of 9 trials was there a significant difference in yield due to time of application.

Ohio Recommendations

RECOMMENDATIONS for fertilizer application in Ohio have been made by the department of agronomy at Ohio State University. Orlo L. Musgrave and George R. Gist, in a recent bulletin, present the fertilizer recommendations for that state. They point out that higher analysis plant foods are frequently less expensive than those of low analysis, on a unit basis. Consequently, the fertilizer ratios and minimum grades recommended for use in Ohio are high, which offers a good market for fertilizer sales. The authors declare that phosphate can be stored in the soil with little loss except by removal with harvested crops. Potash can also be stored in most soils without serious loss from leaching, although it may be lost by leaching from sandy soils.

Maintaining soil fertility at medium or high levels is a desirable long-term soil fertility program, they say. It sets the stage for high yields and the use of labor saving practices in fertilizer usage. Continued high crop yields are most certain when soils contain abundant, well-balanced supplies of available phosphate and potash. With high levels of these elements in the soil, only smaller amounts of starter fertilizers are needed at the time of planting of each crop.

It was pointed out that nitrogen might be lost by leaching, so the authors recommend the application of nitrogen on an annual basis. Nitrogen can be stored in the soil for long periods of time when it is combined in organic matter, however. Organic matter releases nitrogen as it decomposes. Nitrogen from commercial fertilizers has its greatest effect within the growing season of its application.

On legume-grass mixtures, fall application is recommended. Meadows and rotation pastures may be top dressed during the fall, early spring, or following any harvest, the booklet states. Adequate fertilization and proper management are essential to the maintenance of legume stands.

Meadows containing less than 30% legumes should be top-dressed during the fall or early spring with 60 to 80 lb. nitrogen. This nitrogen may be obtained from a 10-10-10 or similar analysis fertilizer, or from straight nitrogen fertilizers.

On land planted to wheat, winter barley, or rye, when low in phosphate, benefit can be obtained by applications of extra phosphate fertilizer at the time of making the seeding. Recommended application is 200 lb. 0-20-0 or 125 lb. 0-20-20 or 0-20-10 an acre with the legume seed. The amount of potash applied with the legume seed should not exceed 25 lb. an acre, they add.

In permanent pasture fertilization, application of 40 to 60 lb. an acre of nitrogen on fair to good sods will advance early spring grazing by two weeks and will greatly increase spring growth, it is pointed out. This application may be made either in the fall or early spring. The acreage treated should not exceed $\frac{1}{2}$ acre for each cow to be grazed. When all fertilizer nutrients are needed, an application of 500 lb. an acre of 10-10-10 or 14-7-7 is suggested.

Suggestions for Illinois

THE emphasis in applying fertilizer to the soils of Illinois is on the need of the soil instead of the need of the crop, according to Dr. A. L. Lang, professor of soil fertility at the University of Illinois, Urbana. Consequently, he says, recommendations are based on soil tests with the idea that materials can be applied any time most convenient to the farmer.

"We recommend that limestone,

rock phosphate be broadcast, worked thoroughly into the soil and plowed down," he said. "On most of our soils, soluble phosphate and potash can be broadcast and plowed down. However, on some of the clay areas of southern Illinois, it is better not to plow down applications in the fall since they may be sealed in by heavy winter or spring rains and thus be unavailable to the roots of the crops.

"It is better in this area for potash materials to be broadcast and disced in on the surface. Phosphate materials may be plowed down. Nitrogen fertilizers can be applied on most of our soils with the exception of sandy lands, either in the fall or spring with equal crop producing value.

"We recommend that fertilizers be applied generally broadcast in relatively large applications of as cheap a source of materials as possible to conserve labor and equipment in spreading. A large proportion of the fertilizer material used in Illinois is

custom-spread. Thus spreading for the custom operators is more convenient in the fall on unplowed land and this is highly recommended and highly satisfactory."

The control of cattle pests in the fall of the year creates a market for malathion, lindane and rotenone, according to the University of Illinois. Extension service bulletins from the University say that control of cattle lice is most effective when applied in the fall of the year. All of the above named pesticides may be used on livestock except dairy cattle to which only rotenone should be applied.

"For best results, treat in the late fall or early winter before lice populations become heavy." This is the suggestion contained in the extension bulletin. (It goes without saying that contamination of feed and watering trough should be avoided at all times in applying pesticidal chemicals. It

is also suggested that calves under 3 months old should not be treated.)

Fall Use in Iowa

IN Iowa, fertilizers may be used and applied during the latter half of the calendar year in a number of places. According to Dr. John Pesek, associate professor of agronomy at Iowa State College, Ames, one place where fertilizer might be used in the fall, is in the top dressing of new seedings and of established meadows.

"We recommend the top dressing of established meadow after the first hay crop has been removed in cases where fertilization could not be accomplished in the spring," he says. The Iowa State professor also says that the top-dressing in the fall of new seedings is recommended upon the removal of small grain nurse crop in such cases where it was not possible nor desirable to fertilize the soil prior to seeding the nurse crop

(Continued next page)

The BIG N CHECK LIST IS THE INDUSTRY'S BEST

FACTORY-TO-YOU SHIPMENT—A supply network stretching from Central on the north to the Rio Grande Valley on the South, supplemented by rail and highway transport, guarantees deliveries when you need them.

DEPENDABLE SUPPLY—Big N's own ammonia plant and transport terminals make supplies certain. Check with any Big N customer.

APPLICATOR EQUIPMENT—Big N maintains stocks of applicator equipment and has a financing plan available for purchases. This aids distributors and farmers alike.

SOIL TESTING SERVICE—An independent, licensed laboratory makes free soil analyses for Big N customers. There is no guesswork.

SALES AIDS—We help our dealers sell in so many ways we can't list them. We help our farmer customers to new profits.

ADVERTISING—Big N anhydrous ammonia is known everywhere. Direct mail, magazine, newspaper and other kinds of advertising are making Big N a household word.

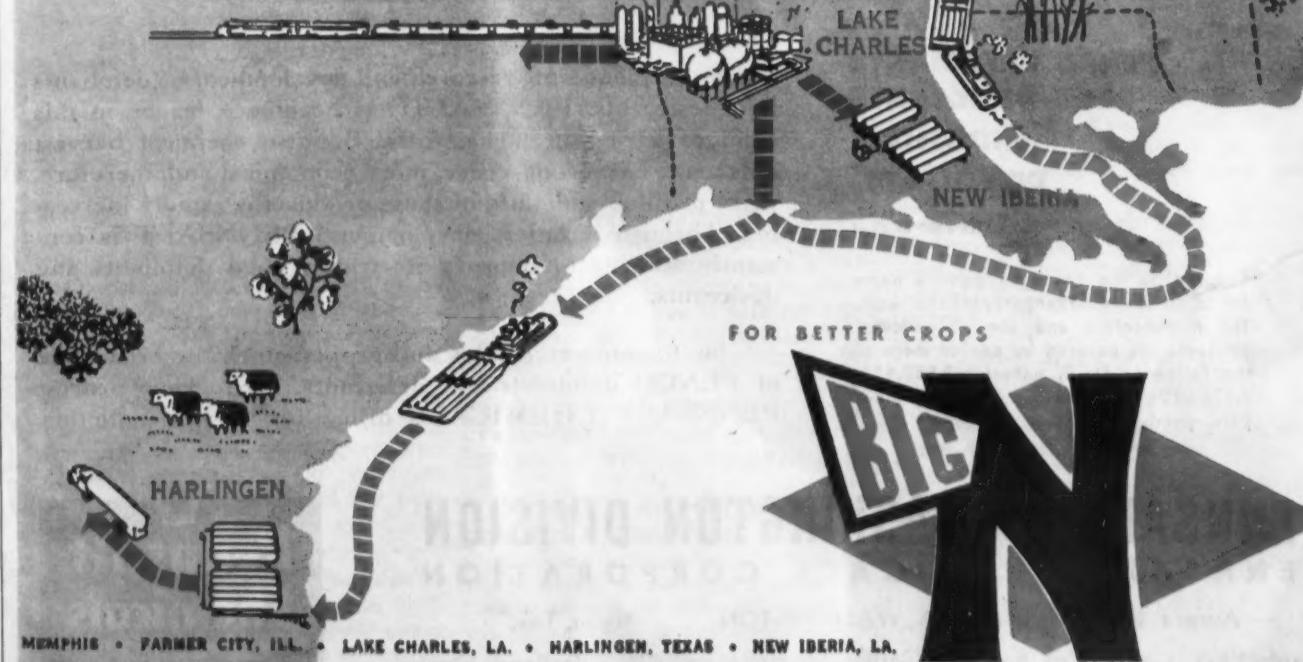
FINANCING—Big N helps good dealers get started with the right equipment, ample tanks and storage stocks. You can depend on Big N dealers.

Mid-South Chemical Corp.

1222 Riverside

Memphis, Tennessee

*Terminal Under Construction



and meadow mixture. "Both of these practices require the use of phosphorus and potassium fertilizer, or either one alone depending on the location in the state and the relative crop needs. I would emphasize that we still feel that the best method of knowing what is needed on a particular field is a good soil test.

"We would also recommend the topdressing of established meadows at anytime during the year recognizing that we prefer the early spring topdressings to the mid-summer topdressing simply because the fertilizer works for the farmer on a particular crop for a longer period of time. We also feel that a topdressing of an established meadow in the fall is a satisfactory alternative to topdressing early in the spring, for the following year's crop.

"The disadvantage which is ordinarily pointed up in this case is that the money is tied up in fertilizer for approximately 4 to 6 months longer than it need be to gain the same results. One of the obvious advantages

to fall fertilization of established meadows, however, is that the fertilization can be done at a time when other farm work is not pressing, the fertilizer can often be bought at a lower price, and usually the soil in the field is firmer and easier to drive on than it might be in the spring.

"We also recommend the fall application and plowing under of phosphorus and potassium needs for the following corn crop in areas where fall plowing is practiced. Our results have shown that plowed under phosphorus and potassium in the fall results in greater corn yield increases than the same quantity of phosphorus and potassium broadcast and disked in on fall plowed ground in the spring.

"Further recommended is the application of anhydrous or other ammonium sources of nitrogen late in the fall after the soil temperature has reached 50° F. at a depth of 4 inches.

This 50° F. refers to the daily maximum temperature at that depth. This temperature is normally reached in central Iowa on about October 25. We do not recommend the application of nitrate forms or ammonium forms earlier than this although there are seasons when this can be done safely. Our main stumbling block at the present time is that we do not have enough of the right kind of information upon which to base a sound recommendation.

"We do recommend the application of nitrogen fertilizers on established grass sods at anytime during the year when it is convenient to do so.

"In general we do not recommend the application of fertilizers on top of snow on frozen ground. However, we recognize that this practice may be relatively safe on fields which have less than 2% slope and which have a heavy cover of crop residues or sod. We recognize as the main danger the loss of nutrients by water movement over the frozen soil sur-

face following thawing of the snow cover.

"While, in many cases, there may be no actual loss or a very small loss from the field itself, the fertilizer material may be moved to such an extent that there is little fertilizer left on the higher places and it is then concentrated in the low places. We feel that this is not a very desirable situation to have and therefore do not recommend winter applications where this could occur."

An earlier bulletin by Dr. Pesek, Lloyd Dumenil and H. R. Meldrum stated that applying fertilizer in the fall is relatively new in Iowa. The authors said that many farmers liked the idea of getting it out of the way before their busy spring season. Truck spreading and custom application of liquid nitrogen materials are easier in the fall than in the winter or spring. Fertilizer movement in the fall lends itself to more efficient fertilizer production and distribution.

The following observations were made in the bulletin: Nitrogen is safe in ammonium forms to apply when soil temperature reaches 55° to 57° F. and then cools to lower temperatures. The "safe date" for application is around the second week in October in northern Iowa and the fourth week in October in southern Iowa.

In applying the nitrate form of nitrogen, the risk of leaching is greater. Good results have come in some years and losses may occur in others. This material is relatively safe in rolling loess soils of western Iowa and claypan soils of southeastern Iowa.

In surface application for corn or oats, caution is advised. Slopes where run-off losses may be high in some years should be avoided, but surface fall application is less risky than winter application. Discing fertilizer in after spreading on slopes decreases risks.

Late summer or early fall top dressing of legumes is satisfactory and possibly preferable to late fall.

In advising farmers in making a decision on application of fertilizers in the fall of the year, the following points are made for their consideration: "You may be balancing more efficient use of your time and labor by applying fertilizer at a less busy season and perhaps a lower fertilizer cost, against a possible loss in fertilizer efficiency and tying up your fertilizer dollars for additional time. This balance sheet changes in the case of plowunder phosphate and potash for corn and top dressed fertilizer for legumes under some conditions."

The authors also point out that in the final decision it is necessary to consider economic and agronomic efficiency of fall and spring fertilizations as they fit into the overall farming operation.

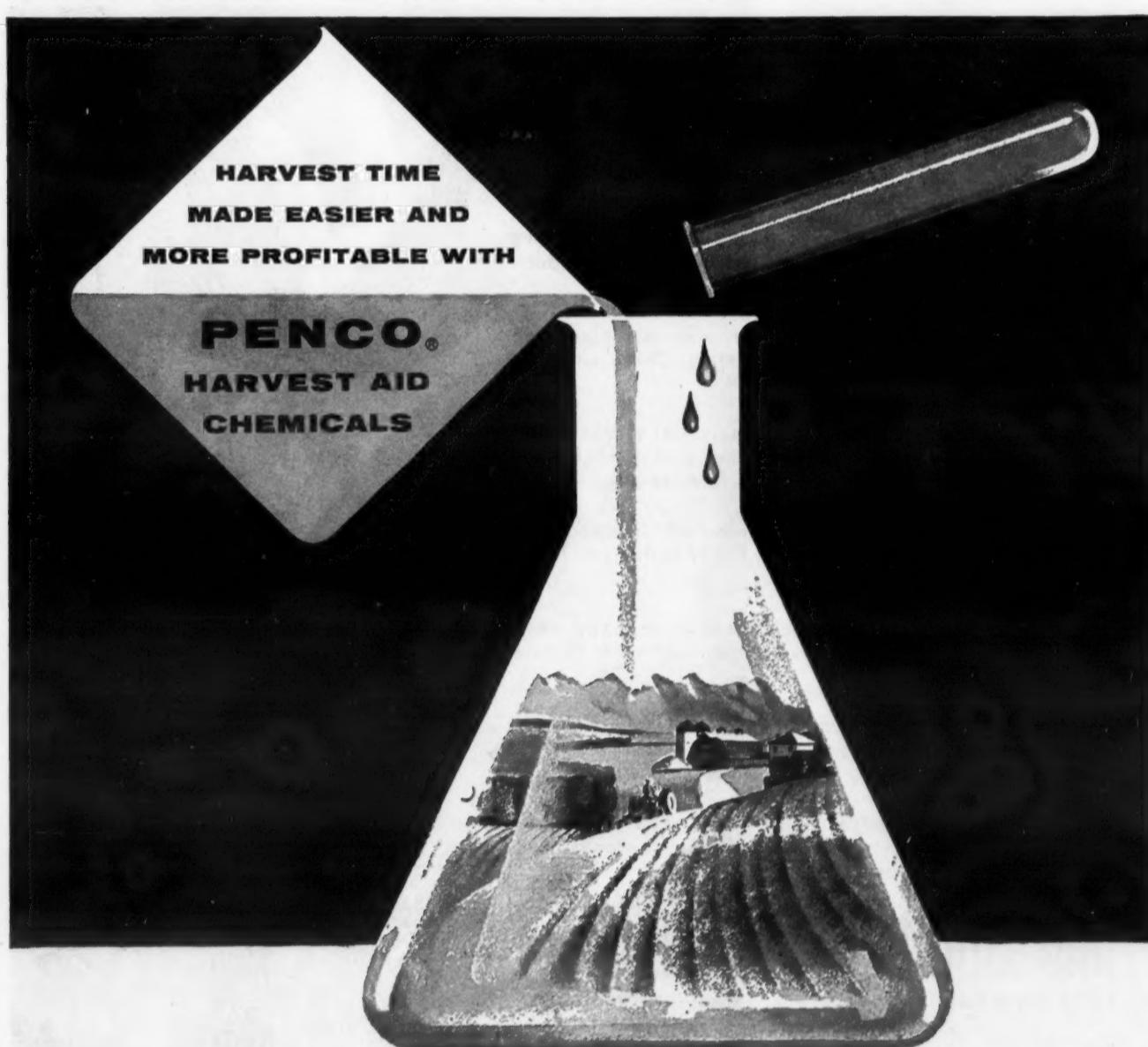
Michigan Recommendations

MICHIGAN State University, East Lansing, Mich., recommends fall fertilization for fall planted crops and for alfalfa and meadows. Dr. R. L. Cook, head of the soil science department at Michigan State, says that these are about the only recommendations the university makes for fall fertilization. "We raise considerable acreage of winter wheat in Michigan and also some winter barley. There is also a small acreage of rye."

He adds that the university does not recommend the fall application of fertilizers for spring-planted crops. "We prefer to have the fertilizers for corn and other spring crops supplied in the spring at planting time," he says.

South Dakota Speaks

IN South Dakota, Leo Puhr of the agronomy department, South Dakota State College at Brookings, says that fall fertilization of small grains, (Turn to RECOMMENDATIONS, page 21)



PENCO DEFOLIANTS AND DESICCANTS ENDOTHAL* DE-FOL-ATE® PENITE-6X®

*Endothal is the accepted generic name for 3, 6-endoxohexahydrophthalic acid. The manufacture and use of endothal products are covered by one or more of the following U. S. patents: 2,550,494; 2,576,080; 2,576,081; 2,576,083; other pats. pend.

THROUGH pioneering research and development of defoliants and desiccants, PENNSALT has become a leader in this field of agricultural chemicals. Because chemical harvest aids make harvesting easier, more economical and, therefore, more profitable, the use of these products is rapidly increasing. Through technical development, PENNSALT is constantly striving to improve its widely used defoliants and desiccants.

So, for increased sales and profits, stock the broad line of PENCO defoliants and desiccants. Write your nearest PENNSALT CHEMICALS office for service bulletins.

PENNSALT OF WASHINGTON DIVISION PENNSALT CHEMICALS CORPORATION

Aurora, Ill.

TACOMA, WASHINGTON

Bryan, Tex.

Menlo Park, Calif. Los Angeles, Calif. Montgomery, Ala. Portland, Ore.





SPRAYER DISPLAY—Sprayers and insecticides are displayed prominently on these shelves in the retail sales room of Johnson Seed Store, Inc., Oconomowoc, Wis. The open displays help promote sales of related products.

Wisconsin Dealer Promotes Related Product Merchandise

To just about every fertilizer, seed and farm supply dealer, there are many merchandising opportunities to seize and exploit for greater volume and profit. A well planned merchandising program, one which is followed through during the year, rarely fails to bring profitable results.

A case in point is Johnson Seed Store, Inc., Oconomowoc, Wis. This feed store was founded by George Johnson, an ardent seedsman and civic-minded man, who died several years ago. His son, George, a lawyer, succeeded him as president, and Howard Heberlein, vice president, is the general manager and the captain of a hard hitting sales promotion campaign.

Each year, too, this store stages a hybrid corn yield contest, an event which attracts much interest and many entrants. Pictures of the winners and other top growers are posted in the store each year, on a fine bulletin board which has this heading: "Meet Some of Our Satisfied Pride Hybrid Corn Users."

In addition, the store publishes a picture in an ad once a year of all the trade area winners, and the newspaper usually prints an article about the results of the contest. Farmers are urged to enter the next year's contest, with rules and entry blanks available at the store.

For many years this store has had seed cleaning and treating equipment. The founder advocated seed cleaning 15 years ago and convinced many farmers to have their field seed cleaned regularly. As a result many of the farm seed customers got excellent crop yields and came back to buy most of their seed and fertilizer requirements at the Johnson store.

Another service which is offered to customers is a free soil test. A recent ad had copy which stated, "Free soil test . . . bring in a sample of your soil and find out all about the nutrients and other factors concerned with growing a successful lawn and garden. You'll know exactly how to care for your lawn and garden . . . and you'll save money, too."

This service, started within the past year, has made many customers soil test conscious. It has resulted in the sale of more fertilizer and also tillage tools.

Along with its seed service, the

store also has a lawn and garden equipment rental service. This includes fertilizer spreaders, rollers, seeders and power mowers. Through this rental service the firm has made contact with many homeowners and gardeners, customers who also buy seeds, fertilizer and other items.

The Johnson store is located on the main street of Oconomowoc, a city of 5,000 in a fine agricultural and resort area west of Milwaukee. The store is modern and an equal in appearance of (Turn to RELATED PRODUCTS, page 11)



SHOP TALK — OVER THE COUNTER

By **Emmet J. Hoffman** —
Croplife Marketing Editor

Fertilizer dealers in late summer and fall are faced with the problem of how to develop and maintain adequate sales volume in a traditionally slack period. Croplife is again emphasizing in four issues the economic wisdom of applying fertilizer to certain crops in certain regions in fall and winter months.

Aside from the agronomic aspect of off-season fertilization, dealers can benefit financially by backing efforts to stimulate off-season fertilization. That is why dealers, as well as other representatives of the fertilizer industry, will find this issue, and others in the series promoting off-season fertilization, of help in their own programs.

There are a few points which a dealer might keep in mind when planning an off-season fertilization program.

A "personal touch" should be maintained with all farmers because these can pay dividends in sales during the slack season. No matter how little a customer buys, he should be treated courteously because some day he may become a large-volume buyer.

Direct mail used in conjunction with regular advertising has the advantage of being the most positive approach to the prospect, other than a personal or telephone call. Direct mail lends itself well to the basic appeals of "value" and "buy now and save."

Prize contests build sales. For example, the 25th or 100th customer may be given a prize.

Customers might be asked what service they expect when the fall or

winter fertilizer promotion is planned. For example, what are the prospect's peculiar storage problems?

Dealers should work with their suppliers to see that no sales-making avenue is missed. The mutual understanding of off-season fertilization is essential. Cooperation between the dealer and supplier in describing, promoting and displaying fertilizer is vital in building up sales during slack seasons.

Dealers should take advantage of the literature and newsworthy aspects relating to off-season fertilization to further educate their prospective customers. Window, counter and floor displays should emphasize off-season fertilization.

A record of the various details of the promotion should be kept to guide the dealer in the following year.

DO BANKERS NEED TO BE SOLD ON FERTILIZER?

By **Al P. Nelson**
Croplife Special Writer

money to raise cows and chickens and make a profit?"

One answer to the problem perhaps is a consistent educational campaign directed at bankers. Most certainly every fertilizer dealer who hopes to induce his local banker to assist farmers in buying fertilizer on a finance basis should keep the banker supplied with facts which show how fertilizer properly applied and in correct amounts is absolutely vital to the farmer's production and profit program.

Perhaps the local banker would attend one general fertilizer educational meeting, and sit with farmers while the dealer explains through slides and other methods the role which fertilizer plays in present farm production. The representative of a fertilizer company could be present at such an educational meeting to give a talk. Introduce him to the banker. See if you can get the two to talk for a few minutes, so the banker can be brought up to date on fertilizer possibilities.

"I'd buy more fertilizer if I could finance it," says many a farmer, "but my banker won't go along with me on it."

If this is a major sales obstacle it needs to be worked on.

The fertilizer dealer who has such a financing problem in his area has some helpers he can call on. If the dealer has his county agent sold on fertilizer programs, he can approach

this man, outline the problem and ask him to visit the banker and talk to him. No need to mention dealer names—the agent wouldn't do that, but if he is convinced farmers could prosper by using more fertilizer, his word will bear weight.

The agriculture teachers in the area might be willing to visit the local bankers and present them with fertilizer information.

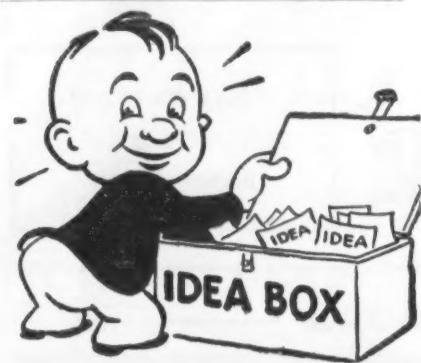
Likewise fertilizer salesmen can perhaps be persuaded to see the local bankers and present their reasons why good fertilizer sales are a sound investment. The presidents of the fertilizer companies with whom you do business could be asked to write a letter to your bankers telling them why they think fertilizer sales need to be financed.

Or, perhaps the manufacturer could set up a brochure which gives financing suggestions, and these brochures could be available to dealers everywhere.

"I can't afford to buy fertilizer in fall and apply it and then wait until next year to get crop results. If I could get financing, then it might be different," one farmer states.

A way needs to be found. If it can, then the industry sales will increase and farmers will be able to buy fertilizer and spread it at times when it costs them less to do it.

The use of commercial fertilizer on such a large scale is relatively new. (Turn to SELL BANKERS, page 16)



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 7043—Bulk Storage Brochure

A new descriptive brochure entitled "Economical Bulk Storage With Steel" has been prepared by the Sapulpa Tank Co. The two-color brochure has installation pictures and factual data pertaining to suggested tank sizes for various storage capacities. Check No. 7043 on the coupon and mail it to this publication.

No. 7050—Trigger Unit on Gross Bagger

A new trigger arrangement with automatic cut-off is said to permit faster bagging with a semi-automatic gross bagger by the Richardson Scale Co. For the company's G-17 gross bagger, the new trigger arrangement holds the gate open longer, and on most free-flowing materials the trigger can be set for the exact weight desired, a company spokesman said, eliminating all trimming. Check No. 7050 on the coupon and mail it to secure details.

No. 6771—Grain Protectant

A new protectant for corn, wheat and other grains in storage has been developed by the Miller Chemical & Fertilizer Corp. Malathion in a dust

or spray is used in the product to protect grains against insects. The dust is formulated on a wheat flour base and the spray concentrate can be mixed with water. The liquid spray can also be used as a residual treatment in grain bins, on walls and other places. Check No. 6771 on the coupon and mail it to secure details.

No. 6779—Source Book

A source book designed to stimulate new independent research efforts by chemists in expanding the potential uses for calcium cyanamide has been published by the manufacturer's chemicals department, American Cyanamid Co. The product, aside from its original use in fertilizers, has application in insecticides and in other industries. Check No. 6779 on the coupon and mail it to this publication for details.

No. 6773—Technical Data Sheet

Henry Bower Chemical Manufacturing Co. has developed a new copper compound trademarked "Dy-Q-Plex-1." Preliminary technical data is contained in a report available to agricultural chemical manufacturers and formulators. Secure the report by checking No. 6773 on the coupon and mailing it to Croplife.

No. 7081—Grain, Seed Treater

A new probe type unit operating on compressed air for treating of grain and seed in the bag on farms has been announced by the OK Manufacturing Co. Called the "In-the-Bag" treater, the unit is recommended for wheat, barley, oats, legumes and other seeds and grains which may be treated with dry chemicals. Check No. 7081 on the coupon and mail it to this publication for details.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6764—Soil Conditioning Agent

A new type soil conditioning agent has been developed by the Commonwealth Engineering Co. The agent is designed for use by manufacturers of commercial soil additives and is said to adjust to the individual needs of specific soils. Secure details by checking No. 6764 on the coupon and mailing it to Croplife.

No. 6766—Movie About Gypsum

A sound slide film, "The Uses of Gypsum in Agriculture," is available from the United States Gypsum Co. for loan to county agents, vocational teachers and farm groups. The film describes the eight major uses for the firm's agricultural gypsum, which, according to the company, improves drainage of wet soils, clears muddy waters, breaks up plowpans and compacted soils, corrects irrigation waters, supplies neutral soluble calcium, conserves nitrogen in manure, supplies sulfate sulphur and stimulates soil micro-organisms. For more information check No. 6766 and return the card.

No. 7075—Research Chemicals

A 42-page booklet entitled, "Lookin' for Somethin'?" contains a list of research chemicals from the Dow Chemical Co. A wide variety of materials—currently available in limited quantities—are listed. Check No. 7075 on the coupon and mail it to secure the booklet.

No. 6767—Publication

Monsanto Chemical Co.'s line of agricultural chemicals, including fertilizer materials, feed supplements, herbicides and insecticides, is described in detail in a special agricultural chemicals issue of Monsanto International, a 36-page publication for overseas distribution. Published in

French, Spanish and English editions, the special issue details the properties of each of Monsanto's agricultural chemicals and describes how they are used in formulations. A guide to each product's use and the type of equipment necessary for application are provided for the grower. To receive a copy check No. 6767 and mail the coupon.

No. 6768—Lining Materials

Wisconsin Protective Coating Co. has issued literature about its cold-set tank lining materials, which include coatings developed specifically for the fertilizer industry for service in nitrogen solutions, phosphoric acid, ammonium nitrate and other products. To obtain more details check No. 6768 and mail the coupon.

No. 6762—Centrifugal Pump

The Deming Co. has begun marketing a new "light-weight," self-priming portable centrifugal pump powered by a Briggs & Stratton engine. The pump is said to meet the requirements of handling liquid fertilizer. Called the "Fig. 3,307," the pump has a stainless steel alloy pump shaft coupled to the engine shaft by a compression coupling which "assures perfect alignment." None of the liquid being pumped touches the engine shaft, it is claimed. Check No. 6762 on the coupon and mail it to secure details.

No. 7057—Dolly Bag Closer

An adjustable, portable, manually-operated dolly bag closer for closing small size bags has been announced by the Minneapolis Sewing Machine Co. The model—JD-4—closes paper, cotton or burlap bags of any size up to 25 lb. Check No. 7057 on the coupon and mail it to secure details. Please print or type name and address.

No. 6769—Pellet Booklet

Chemical Engineering Service, Division of Manitowoc Shipbuilding, Inc., has published a booklet on pelletizing. This booklet is full of useful information for the guidance of those desiring to pelletize, as well as full diagrams of the various types of installations possible. It explains the important factors to study before proceeding to purchase. The booklet is written and illustrated in simple terms and contains 21 pages of useful information. Check No. 6769 on the coupon and mail it to secure the booklet.

No. 6761—Concentrates

The Diamond Alkali Co. announces the availability of low volatile 6-lb. Ethyl Hexyl Esters of 2,4-D and 2,4,5-T to custom applicators of herbicides. These high acid equivalent concentrates are said to make possible substantial cost economies and provide a number of other important advantages in weed and brush killing operations. The concentrates may be mixed with water for an emulsion, with straight oil for an oil spray, or with a combination of oil and water. To secure further details please check No. 6761 on the coupon and mail it to Croplife.

No. 7068—Sewing Machine Head

A portable traveling head unit for closing bags while they are on the platform scale has been introduced by the Minneapolis Sewing Machine Co. It is claimed that one operator can fill, weigh and sew without moving the bag or changing his position. Forty inches of horizontal travel is provided. Over-all length of the standard unit is 6 ft. 6 in., the height

Send me information on the items marked:

- No. 6760—Folder
- No. 6761—Concentrate
- No. 6762—Pump
- No. 6763—Granular Mill
- No. 6764—Conditioning Agent
- No. 6765—Tank
- No. 6766—Movie
- No. 6767—Publication
- No. 6768—Lining Material
- No. 6769—Pellet Booklet

(PLEASE PRINT OR TYPE)

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT NO. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.



BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

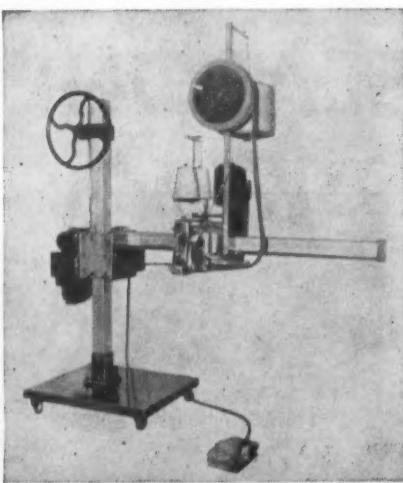
POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.



is 6 ft. and the extended height with tape attachment is 7 ft. Check No. 7068 on the coupon and mail it to secure details.

No. 6770—Catalog

The RegO Division of the Bastian-Blessing Co. has announced the publication of its new A-100 catalog, covering the line of "RegO" anhydrous ammonia control equipment. Detailed descriptions of multi-purpose valves, globe and angle valves, check valves, relief valves, etc. are presented in the 28-page catalog. Full ordering information is included with each item. Check No. 6770 on the coupon and mail it to secure the catalog.

No. 6765—Irrigation Drip Tank

Fabricated Metals, Inc., has published new literature describing its No. 4301, 500-gal. irrigation drip tank for gravity and pressure applications. The tank is supported on legs that are both removable and adjust-



able for height. A 1-in. metering valve is provided for accurate adjustment of flow, the literature states. Check No. 6765 on the coupon and mail it to secure the literature.

No. 6760—"Sevin" Folder

A folder explaining how to use "Crag Sevin," a new insecticide for apples and pears, is available from Union Carbide Chemicals Co., Division of Union Carbide Corp. "Sevin" may now be purchased in limited quantities by experienced apple and pear growers for field testing. Secure the folder by checking No. 6760 on the coupon and mailing it to Croplife.

No. 6763—Granular Fertilizer Chain Mill

Literature describing the granular fertilizer chain mill manufactured by the Fertilizer Engineering & Equipment Co., Inc., is available. The mill is said to be a unit that cracks instead of pulverizes. Officials say that the "normally over 75% of throughput will be in the selected range of sizing." The mill is of the non-clogging design. Check No. 6763 on the coupon and mail it to secure details.

No. 7077—Fly Spray

Pratt Laboratories, Inc., has announced the introduction of a new fly spray called "Fly Bomb." The product, which is now available to dealers, contains a repelling agent

called "Tabutrex." The product can be used safely around the home, it is claimed, and it comes in 12-oz. aerosol container. Check No. 7077 on the coupon and mail it to secure details. Please print or type name and address.

RELATED PRODUCTS

(Continued from page 9)

any other retail store. Behind the store is a municipal parking lot, accommodating 200 automobiles. Many home owners and farmers like to park there and enter the seed store through the back door and load up there, too, with seed, fertilizer, feed and other farm supplies.

Alert, too, to the need of more information about fertilizers, insecticides and other garden requirements, Mr. Heberlein this spring staged a one day garden clinic in

the store. A manufacturer's representative was on hand to answer questions which customers asked about garden problems. Several hundred people visited the store that day, many getting the answers they wanted before preparing their gardens for seeding.

Mr. Heberlein and staff, too, are alert to the opportunities in the selling of sprayers and foggers. This summer the firm has been pushing a super fogger for \$62.95 which can be used for lawns, gardens and dairy barns. There are many large, profitable dairy farms in the area and quite a number of farmers have bought these foggers. Milk production regulations are getting stricter by the year, with many farmers being forced to install bulk milk coolers to promote greater sanitation. Therefore fly control is important, too, and the use of super foggers helps farmers win the sanitation battle. There are many large summer homes in the

area, numerous lakes, and also resorts, and super foggers sell well here, too.

Mr. Heberlein believes in using advertising space consistently. Practically every week he has sizable display ads in a weekly newspaper published in Oconomowoc, and also ads in a county shopping guide with a large circulation. Between these two publications he covers just about every home in his trade area.

Store displays are very appealing due to good fixtures—some of them constructed locally—and also to good fluorescent lighting. One wooden display unit which is ideal for small packages of plant food can easily be pushed up into a window area where it can be seen clearly by sidewalk traffic. It is also used to show insecticides, poultry and livestock remedies in season.

Mr. Heberlein also pushes the sale of vegetable plants and potted plants, as well as planters.

"We want a
solution with
more N...
and a higher
Fixed-to-Free
ratio!"

SOHIO
SERVICE
supplies
the answer

That's the problem
one company brought to
SOHIO. The answer:
Sohiogen Solution 16 for
granular fertilizer
manufacturers

A PROBLEM with a familiar sound—regular ammoniating solutions just didn't meet the trend to high-nitrogen granular grades. The Sohio men went to work . . . formulated and tested a new solution that met all requirements. In addition, low salting-out temperature made it easy to handle, and recycle rate was low.

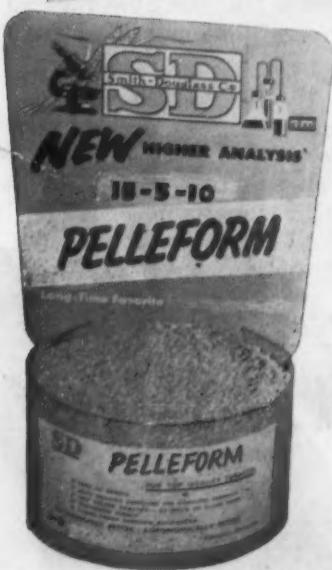
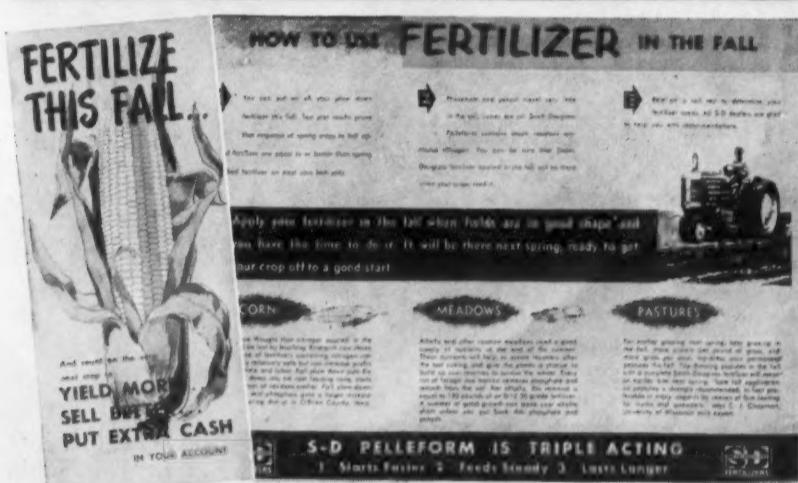
Even more important, as Sohiogen Solution 16, the new solution can help you formulate high-analysis granular grades at lower cost. You'll save by using more of the low-cost nitrogen materials . . . less acid . . . and you'll have more room to use your lower cost phosphates. Sohiogen Solution 16 is just one example of how you can benefit from Sohio SERVICE . . . and a full line of Sohio nitrogen materials. Call the "Man from Sohio" for details.

...we're serious about SERVICE at Sohio

SOHIO CHEMICAL COMPANY

FT. AMANDA RD., BOX 628, LIMA, OHIO • PHONE: CAtherine 5-8015





Smith-Douglass Co., Norfolk, Va., has prepared a number of sales helps to aid in merchandising fertilizers in the off-season. Above is the opened-out brochure entitled "Fertilize This Fall" which gives the off-season application story for corn, meadows and pastures. The cover of the brochure is shown at the left end of the cut. Folded up, the pamphlet measures $3\frac{3}{4} \times 8\frac{1}{2}$ " so it will fit in an envelope. Below at left is display available to S-D dealers. While this is not designed specifically for fall use, it may be used with fall plow-down analyses to boost sales at that time of year.

OFF-SEASON MERCHANDISING

GRAND RIVER CHEMICAL Div., Pryor, Okla., offers fall fertilization booklets and store displays for its outlets. At left is a booklet opened out to show more of the contents. Cover, printed in green and black, is at right side of photo. Each of the three pages shown measures 4" x 9" for inclusion in an ordinary envelope.

At left, below, is store display containing literature and fertilizer samples. In center of display is the Deere nitrogen calculator, a circular slide rule which calculates pounds of actual nitrogen by the number of pounds of different types of nitrogen necessary to apply. These calculators have been helpful to users who need to translate pounds per acre and acres per ton of different nitrogen fertilizers.



MORE SELLING HELPS AVAILABLE

This is the second in a series of foundations appearing in Croplife to remind fertilizer and pesticide dealers that a wide help is available from suppliers of chemicals. Additional merchandising appear in the issues of July 28 and

Commercial Solvents Corp., New York, has made available to its dealers displays for the store, including banners for walls and windows, display racks and booklets suitable for mailing or handing to customers. In addition, the company has available a large selection of advertising mats for use in local newspapers to tie in with advertising carried out by the firm in national and regional farm publications. Technical information, loose leaf style, is also available covering the properties of the ammonium nitrate product, Hi-D, made by Commercial Solvents Corp.



MERCHANDISING MADE EASY . . .



MILLER CHEMICAL & FERTILIZER CORP., Baltimore, Md., offers a broad selection of posters, brochures and pamphlets for its outlets. The banner pictured at the left measures 14 x 29½" and is printed in yellow, green and black. Similar window banners for lawn, tree and shrub fertilizers are also offered by Miller, as are stand-up and counter displays describing plant starter fertilizer and foliage spray plant food.

HELP AVAILABLE

In a series of four present Croplife to remind fertilizers that a world of sales in suppliers of various merchandising aids will be available on July 28 and Aug. 4.



FIGURE the Cost Per

When You Compare Fertilizer Prices

RATES OF APPLICATION PER ACRE

DIFFERENCE IN SELLING PRICE PER TON (Dollars more per ton)		200 lbs.	250 lbs.	300 lbs.	350 lbs.	400 lbs.	450 lbs.	500 lbs.	
\$2.00/Ton	20	25	30	35	40	45	50		
\$4.00/Ton	40	50	60	70	80	90	100		
\$5.00/Ton	50	62½	75	87½	100	112½	125		
\$6.00/Ton	60	75	90	105	120	135	150		
\$8.00/Ton	80	100	120	140	160	180	200		
\$10.00/Ton	100	125	150	175	200	225	250		
									Additional COST Per Acre

**Grade for grade
AMMO-PHOS®
is your BEST BUY!**

IT PAYS TO USE

Water Soluble, Pelletized, High Analysis
AMMO-PHOS® Fertilizers

FOR EXAMPLE: If you paid \$4.00 more per ton for AMMO-PHOS and applied it at the rate of 300 lbs. per acre, the actual additional cost per acre is only \$1.20. An increase of 3 lbs. of fertilizer per acre at \$1.20 per pound, less than one-half bushel of corn or \$1.50 per bushel, or less than one-fourth bushel of wheat at \$2.20 per bushel, will more than pay the extra cost of the higher quality product - AMMO-PHOS. The increased production from AMMO-PHOS will pay several times the slight increase in per acre fertilizer cost.

OLIN MATHIESON CHEMICAL CORPORATION
PLANT FOOD DIVISION • LITTLE ROCK, ARKANSAS

Top-Dressing Speeds Meadows' Comeback After First Cutting



HERE COMES FIRST AID FOR HUNGRY PLANTS!

ALFALFA

Fertilizer can obtain from top-dressing their legume-grass meadows with fertilizer after the first hay cutting were made by the Middle West Soil Improvement committee.

1-Meadows make a quicker come-back.

2-The fertilizer helps boost hay yields that follow. This can mean lower costs and higher profits per acre and per ton.

3-Hay yields that follow will be larger, due to the plant food. This can mean lower costs of production and higher profits per acre and per ton.

4-Fertilized hay is generally

of higher quality. It is more nutritious and has a larger protein content.

5-The top-dressing adds to the life of alfalfa by supplying the legume with the phosphate and potash it needs for vigorous growth.

Regular additions of fertilizer are important for keeping pastures at a profitable, high-producing level for long periods, the committee says.

Agronomists in a number of Midwestern states say it pays to add fertilizer to pastures to provide 40 to 60 pounds per acre of nitrogen, phosphate and potash.

High Population, Fertile Soil Key to 100 Bushel Corn Yields



Fertilized corn averaged 19.5 more bushels per acre than did unfertilized corn on 276 farms.

CORN yields of 100 bushels or more per acre are within the reach of farmers who use good field practices, add sufficient fertilizer and plant enough kernels per acre.

The statement of Charles A. Simkins, University of Minnesota extension soils specialist, in summarizing results of the 1957 Minnesota X-Corn Yield Contest.

Simkins reported that fertilized corn averaged 19.5 more bushels per acre than did unfertilized corn on the fields of 276 farmers who participated in the contest.

Some individual increases ran much higher. Don Emil Engle and his son Emil, of Fountain, Minn., boosted yields by 132.5 bushel per acre in a fertilized plot compared to an unproved area. Clinton Johnson of Saint Paul, Minn., increased his corn yield 95 bushels per acre through the use of fertilizer.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest

was 185.9 bushels per acre grown by Donald Hassing of Easton, Minn. Second place was won by William Zimmerman of Paynesville with 165.3 bushels.

Simkins says farmers who use good field practices can probably invest up to \$20 in fertilizer for corn, if their present yields are below 80 bushels per acre.

"Results of this contest show that it is important to plant enough corn per acre, in addition to using fertilizer," says a statement made public by the Middle West Soil Improvement Committee.

Some farmers who planted less than 12,000 plants averaged only 64.6 bushels per acre and boosted yields by only 6 bushels when they used fertilizer.

Others who had 16,000 to 18,000 plants per acre, averaged 120 bushels per acre on fertilized fields, or an increase of 26 bushels compared with unfertilized plots.

Top corn yield in the contest



By AL P. NELSON
CropLife Special Writer

The well-groomed, grey-haired lady was looking at the multitude of cans and packages of insecticides and pesticides on a center island, as Pat McGillicuddy came back from lunch. Tillie had gone to the restroom and Oscar sat at his desk checking discounts and figuring costs. Oscar would never walk forward to meet a customer. He always waited until they came to the railing at his desk and asked for something. Then he

usually turned with an annoyed look on his face that froze a customer's grip on his pocketbook.

"Hello, Mrs. Harrigan," smiled Pat coming forward eagerly. "May I help you?"

"Why, yes," said the woman, pleased at the warmth of Pat's attention. "I want some rose dust."

"You do have some lovely roses," Pat said appreciatively. "Nora mentioned them when we drove down your street the other night. They looked wonderful."

"Oh, did Nora say that? She's a charming woman. Why don't you and

she come over and see us some evening? We'd love to have you."

Pat put the package of rose dust into a bag. "We certainly will, thank you. Mrs. Harrigan, do you have weeds like this in your lawn?"

He handed the woman a reprint from CropLife's Weed of the Week series. "That's the broad leaved plantain," Pat said. "It's a pesky thing. It can ruin a lawn. But an application of 2,4-D and other selective herbicides is effective in controlling it."

"Oh, so that's what it's called," exclaimed Mrs. Harrigan. "Why, yes, we've got lots of those. The

lawn mower won't cut them all down. I found that out. What did you say controls them?"

"2,4-D," said Pat reaching for a can. "Also some other herbicides. Once they're out of your lawn the grass fills in better."

"Oh, but isn't it messy to apply it?" the woman asked. "I hate to get messy and Harry has a bad back and can't bend too much."

Pat reached for a long tube sprayer. "This sprayer is ideal for such lawn spraying as plantains and dandelions," he said. "Harry could mix the spray, pour it in here, and then put the sprayer down on the weed, shove down the handle and it's done."

He held the tube sprayer down to the floor to illustrate. "Here, try it."

Mrs. Harrigan took the sprayer, pulled back the handle and shoved it down. "Oh, how easy. I often wondered what those doo-hickies were. They're sprayers. How much is it?"

"The sprayer is only \$2.95 and a can of 2,4-D, the medium size, is \$1.25. That'll last you quite a while and you save by buying the medium can."

"Oh, I'll take it," she said. "I guess Harry and I just never thought of it. This makes lawn spraying easy. Thanks for telling me about it."

When the lady had marched out of the store, the wrapped sprayer and 2,4-D and dust, under her arm, Pat said to Oscar. "Yep, it works, Oscar. We can sell more spray materials by a little suggestive salesmanship."

Oscar grunted. "I heard you buttering her up," he said. "Ach, you talked like our preacher, when he's asking for the big budget in our church. You talked forty minutes with Mrs. Harrigan. I checked you."

"Well, I made the sale," Pat defended.

Oscar scratched with his pencil. "The sale was \$4.20. Ach, with a 40% margin, you made \$1.70 in 40 minutes."

"The rose dust brought in \$1.25 more."

Oscar snorted. "Ach, add another 50¢. You made \$2.20 for us in 40 minutes. Big schtuff, eh?"

"Don't be so practical, Oscar," said Pat patiently. "This was a test campaign of mine. I am going to try it the rest of the afternoon. I want to prove to myself we can sell weed spray materials, and then I may do something."

"Ach, don't let it cost money!" Oscar snapped. "That we ain't got too much of yet."

Pat's eyes sparkled. "We have a list of home and farm customers," he said. "Every week they got something they should spray or attend to in their lawns and gardens. But they don't know what they should do. We should tell them."

"Let them pay up first before we gif them any more advice," Oscar said. "Many of those gardeners owe us money."

Pat frowned. "Oscar, I've told you many of these home owners and gardeners charge stuff for 30 days just like farmers. Those people like to pay once a month, on a revolving credit sort of plan. That way they keep buying more."

"If they can't pay for it when they buy, then they shouldn't buy," Oscar said stubbornly. "That's what Minnie and I do—pay cash."

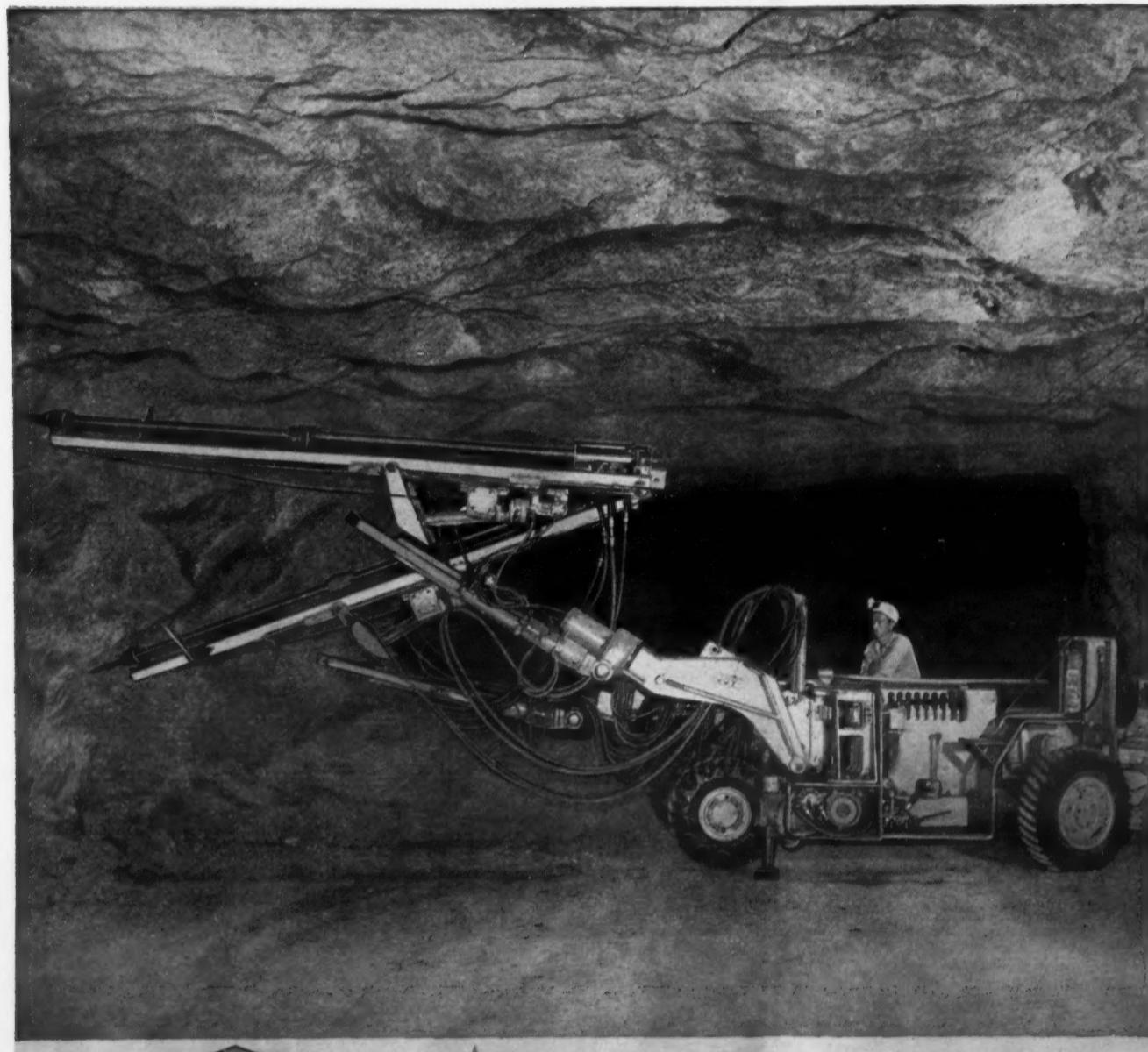
"But most people don't live that way anymore, Oscar. They use their credit. And credit used wisely is a sound thing for customers, Oscar, and it sells more goods."

"Bughouse!" cried Oscar. "I like money in the bank. I don't like paper promises."

"We can buy these Weed of the Week reports rather cheap from CropLife," went on Pat, "and we can mail one each week to a selected group of prospects."

"Ach, what goot will that do?" Oscar asked sharply.

"It will give these people buying



DUVAL

Drilling blast holes with a multiple mounted drill
in the Duval mines near Carlsbad, New Mexico.
One of the many processes which bring you . . .

High Grade Muriate of Potash...

HIGH ANALYSIS • DEPENDABLE SUPPLY • UNSURPASSED SERVICE

DUVAL SULPHUR
and
POTASH CO.

Norfolk, Va. • Charleston, S.C. • Tampa, Fla. • Jackson, Miss. • Columbus, Ohio • Montgomery, Ala. • Des Moines, Iowa

Exclusive Distributors
ASHCRAFT-WILKINSON CO.
ATLANTA, GEORGIA
Cable address: Ashcraft

suggestions on spray materials to control certain weeds. It will make them buy. It's something definite."

"I don't like Croplife," Oscar snorted.

"Why not?"

Oscar grunted. "Because they don't have enough classified ads about fertilizer dealers that want to sell out. That's why I am looking for a store I can buy and run by myself."

Pat chuckled. "Then you're doomed to be disappointed, Oscar. The fertilizer business is so good that very few dealers want to sell out. The farm supply field is the best in the nation right now. There's a tremendous field for sale of fertilizer, insecticides, pesticides and related supplies. And our Weed of Week promotion is one that will pull in lots more trade."

"With small profit like you made?"

"No, what I learn by this survey will bring not one, but 40 customers into the store—or even more. Each won't need so much explaining as Mrs. Harrigan. We'll sell them quickly, and then the profit'll mount."

Oscar sneered. "With ideas like you got, McGillicuddy, you should work for the government. Himmel, then it wouldn't make any difference if you run in the hole or not with your crazy ideas. But in private business like this, we have to watch the gelt, and I will watch it, nicht wahr?"

Gloomicides

After a young lawyer had talked nearly five hours to a jury who felt like lynching him, his opponent in the case, an old veteran of the legal cockpit, rose, smiled sweetly at the judge and jurymen, and said:

"Your Honor, I will follow the example of my young friend who has just concluded, and will submit the case without argument."



"Am I scared! Got a letter from a man saying he'd shoot me if I didn't stay away from his wife."

"Well, all you gotta do is stay away."

"Yeah, but he didn't sign his name."



First Communist: "Nice weather we're having."

Second Communist: "Yeah, but the rich are having it, too!"



Multiply your age by 2 and add 5 to the result. Then multiply by 50. Add the change in your pocket if less than a dollar.

Subtract the number of days in the year, 365. Then add 115 for good measure.

The two left-hand figures will show your age, and the two right-hand figures, the change in your pocket.



After one shuddering bite, the customer beckoned the waitress and asked, "Miss, what's wrong with these eggs?"

"Don't ask me," snapped the waitress. "I only laid the table."



The bishop advised a politician to go out into the rain and lift his head heavenward. "It will bring a revelation to you," the old bishop promised.

Next day the politician reported: "I followed your advice and no revelation came. The water poured down my neck and I felt like a fool."

"Well," said the bishop, "isn't that quite a revelation for the first try?"



"I work in the opera at night. In the last act I carry a spear."

"How do you manage to stay awake?"

"The fellow behind me carries a spear, too."



Farmers could boost their net profit many million dollars a year by fertilizing their alfalfa fields, according to Dr. Kermit C. Berger, University of Wisconsin soils scientist.

Dr. Berger says these increased profits could not only include greater revenue from higher, better quality alfalfa yields, but also potential income from other crops that could be profitably grown on much of the acreage now devoted to alfalfa.

Productive alfalfa strains and intelligent fertilizer use make it possible to grow alfalfa continuously

on hilly soils of Wisconsin, Dr. Berger reports. This can make available the more level and fertile soils for growing row crops such as corn, soybeans, wheat, oats and barley, he says.

Present alfalfa yields are less than half of what could be produced if farmers followed the recommendations of the agricultural colleges and experiment stations, Dr. Berger points out.

With the proper use of phosphate and potash fertilizers including boron, it is possible to extend the life of al-

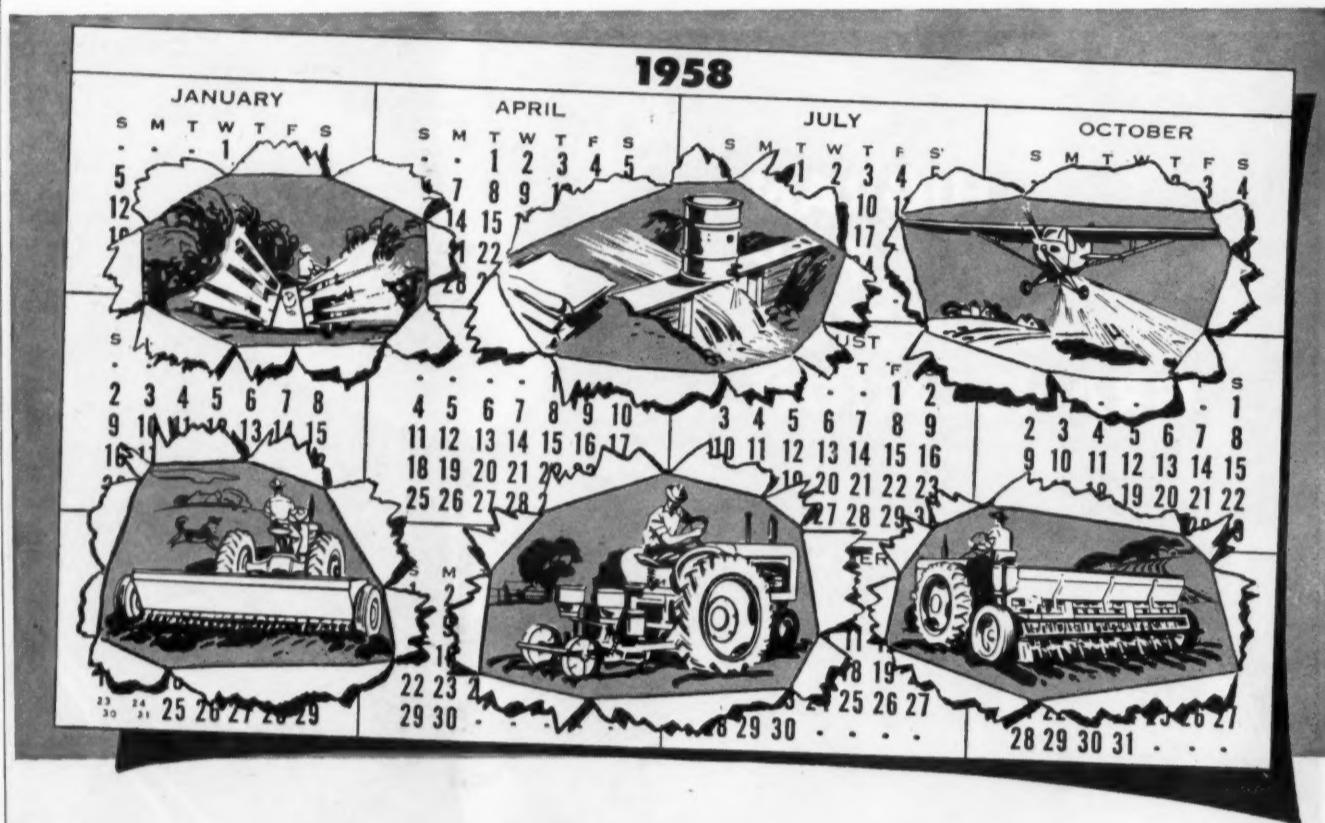
falfa stands to 10 to 12 years or more and to maintain average yields of four tons or more per acre each year, he says. Fertilizers such as 0-14-42B or 0-10-30B are effective for alfalfa, Dr. Berger reports.



Excavated drainage ditches need to be kept free of weeds and brush if they are to dispose of excess water from cropland quickly enough that crops will not be damaged, says D. R. Sisson, Purdue University agricultural engineer.

The capacity of a drainage ditch infested with willows and weeds may be reduced by half, Mr. Sisson asserts. Clogged ditches mean reduced effectiveness of tile drainage systems. Excavating equipment for ditch cleanouts will not be required so often if brush is controlled. A grass sod on ditch banks should be encouraged. Grass will control bank washing, but will not reduce the flow in the ditch.

Mr. Sisson says weeds and brush



**'Round the Calendar
Profits Are Yours
when you sell these
2 Grace Fertilizers**

✓ Grace Urea Prills

When your customers require nitrogen in the solid form, you'll find it sound (and profitable) business to recommend Grace Urea Prills, guaranteed 45% nitrogen. This is a special free-flowing form of urea with definitely superior anti-leaching qualities—ideal whenever a solid nitrogen is preferred.

✓ Grace Agricultural Grade Crystal Urea

And Grace Agricultural Grade Crystal Urea is the right recommendation for foliar spraying, because this urea is specially formulated for foliar application. Its low biuret content (less than 0.2%) makes it safe; it is completely water soluble, won't clog spray equipment; and it is 46% nitrogen.

Team Up With **Grace** ...and Profit!



Grace Chemical Company A Division of W. R. Grace & Co.

MEMPHIS—Home Federal Bldg., Jackson 7-1551 • CHICAGO—75 E. Wacker, Franklin 2-6424

TAMPA—2808 S. MacDill Ave., 82-3531 • NEW YORK—7 Hanover Square, Digby 4-1200



may be controlled by chemical sprays and by mowing. Recent developments in chemicals have helped to simplify the job tremendously. Most weeds and brush can be controlled with a mixture of equal parts of 2,4-D and 2,4,5-T, ester type. One gallon of chemical may be used in 100 gal. of water.



Both the newly-harvested grain in Nebraska and the structures in which it will be stored should be treated with insecticides, a University of Nebraska insect specialist warns.

Robert E. Roselle, extension entomologist, said grain bins should be cleaned and sprayed with an insecticide two weeks before new grain is binned, if possible. Cleaning of old bins must be done thoroughly—inside and outside—Mr. Roselle emphasizes.

All surfaces, inside and outside, should be sprayed, according to the following recommendations:

Methoxychlor, using 50% wettable

powder at the rate of one cup per gallon of water, or:

Premium grade malathion at the rate of one part 57% malathion to 25 parts of water.

Several grain protectants are available, Mr. Roselle said. Pyrethrum and malathion are both registered for application at the time of harvest. Applications may be made at the combine, or when grain is elevated into bins. Either sprays or wheat flour dusts can be used.

If applied at the combine, better distribution can be obtained, the university specialist advised. Stored wheat should be checked periodically for insect activity after it has been binned, even if protectants have been used, Mr. Roselle states.



Farmers can push summer-seeded legumes off to a fast, vigorous start with the new band seeding method,

according to reports by midwestern agronomists.

Farmers can profit three ways from band seeding, the agronomists say: 1. They cut down seeding rates by one-fourth or one-third, thus saving on seeding costs; 2. They reduce the chances of seeding failure; 3. They help promote thicker legume growth than when they broadcast the seed.

Band seeding pin-points the legume grass mixture in a narrow band directly above the fertilizer. Thus the young seedlings can quickly reach the nutrients they need to establish hardy stands.

Band seeding is simple. The seed is dropped behind the drill on top of the soil by the use of flexible tubes attached to the seed box. Then by running over the ground with a cultipacker the seed is properly covered.

Legume-grass mixtures can be summer-seeded in late July or mid-August after the wheat has been har-

vested, or on land that has been in fallow to control weeds, according to Michigan soils scientists.

Grain drills can be economically and quickly converted to band seeding action, Purdue agronomists report. The conversion job can readily pay for itself the first year through the saving on seed costs.

The most profitable results from legume-grass seedings are obtained when band seeding is combined with broadcast and plow-down applications of fertilizer, midwestern agronomists report. Such a practice gives the soil a backlog of plant nutrients when the fast-growing legume roots push deeper down for food.



Balanced fertilization in a rotation on low fertility soil boosted corn yields as much as 55 bu. per acre, wheat by 24 bu. and hay more than a ton per acre, reports E. C. Doll, University of Kentucky agronomist.

In tests at Campbellsville, Ky., plots that got lime, nitrogen, phosphate and potash fertilizer yielded 66 bu. of corn per acre, compared to only 11 bu. on plots that received lime alone, says Mr. Doll.

Wheat yields averaged 25 bu. per acre on the balanced fertilization plots, compared to seven-tenths of a bushel on plots that received lime alone; hay yields were 1.7 tons per acre, as against four-tenths of a ton per acre.

The three-year rotation included corn, wheat and red clover.

Mr. Doll reports that only one cutting was made of the red clover, due to excessive rain.

SELL BANKERS

(Continued from page 9)

Dealers have found that there is a continuing need for fertilizer educational programs, and perhaps some of these programs have not yet touched some bankers. It is the responsibility of every fertilizer dealer to see that his local bankers have the latest available facts and figures about fertilizer. No one else is going to do this job for him. He has to do it himself.

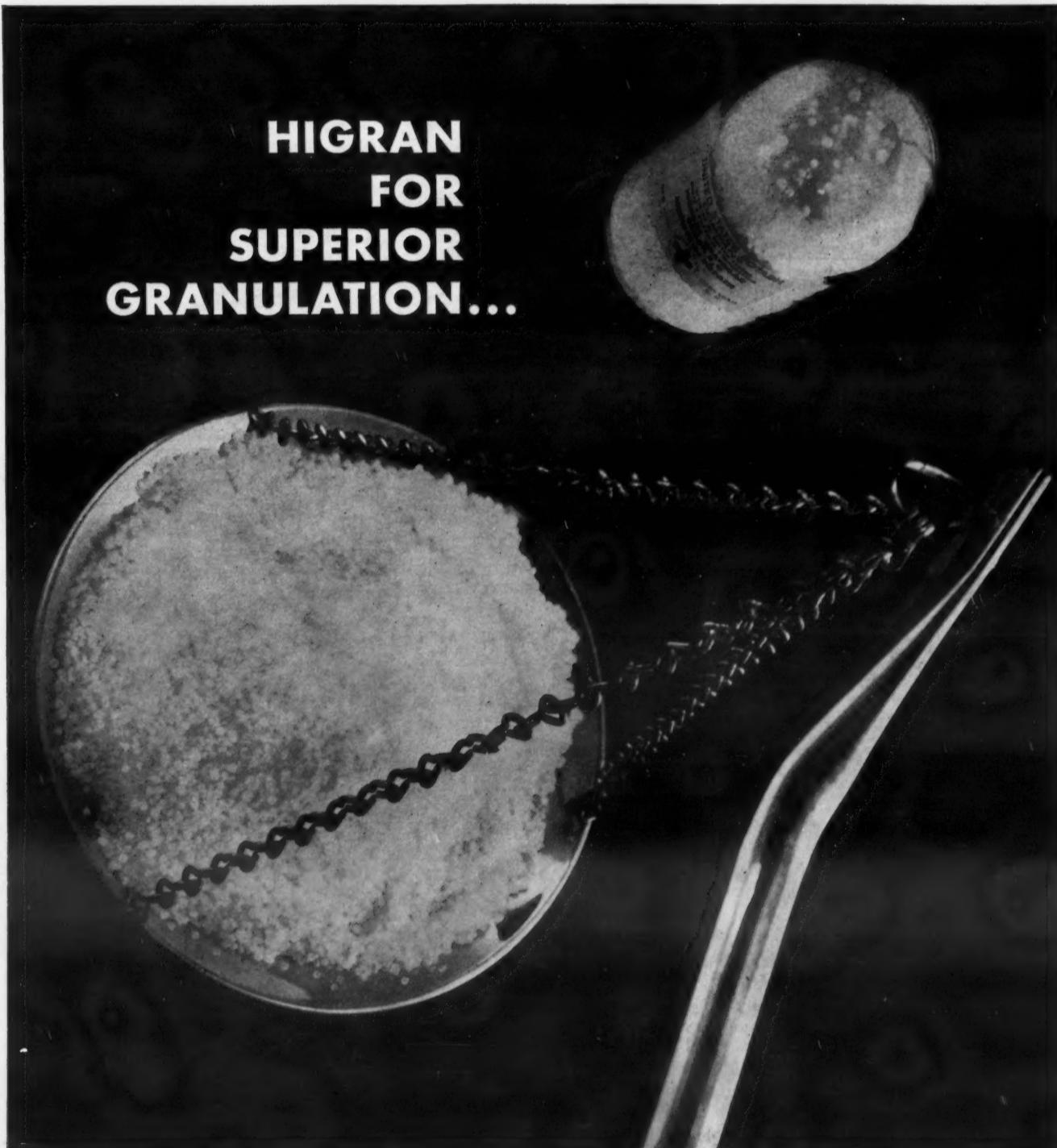
How about that saying, "Invest \$1 in fertilizer and reap up to \$3 or more?" These are facts that farmers understand and bankers also. Have you got records to prove this? Then show your bankers such records. Prove to them that fertilizer is an investment, perhaps the best one which the farmer can make. With many bankers, records which cite the actual accomplishments of local farmers will usually have much weight. Use these records as sales ammunition.

And, of course, if the dealer can arrange a field tour for his local bankers during the growing season, showing them fertilized and unfertilized plots, this is fine education, too.

Why should the fertilizer dealer think that bankers know everything? It is true that bankers need to know much about every industry, especially if they are to make loans in such industries. But bankers have need for more, specific information in certain fields. They cannot keep up to date as fast as fertilizer dealers with developments in the fertilizer industry. Therefore, it is the job of individual dealers to see that their bankers are kept informed. A dealer can't just walk in and ask a banker to finance a fertilizer purchase for a customer, without considerable preparation to convince him that fertilizer is as sound an investment as a farmer can make.

The dealer can get started on such a program today. With thousands of fertilizer dealers making up their minds to keep their bankers informed about the industry, some very favorable results can occur in a very short time.

HIGRAN FOR SUPERIOR GRANULATION...

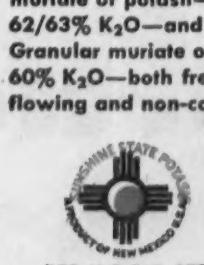


USP'S SPECIALLY SIZED HIGRADE GRANULAR

USP's new Higran—a white granular muriate of potash specially sized for the manufacture of modern fertilizers. Non-caking and free-flowing throughout, Higran is the purest agricultural granular muriate of potash now available (62/63% K₂O).

You're invited to contact USP for consultation. Our Technical Service Department welcomes your inquiries.

UNITED STATES POTASH COMPANY
DIVISION OF UNITED STATES BORAX & CHEMICAL CORPORATION
50 Rockefeller Plaza, New York 20, New York
Southern Sales Office: Rhodes-Haverty Building, Atlanta, Georgia



MEMBER:
AMERICAN
POTASH
INSTITUTE
REG. U. S. PAT. OFF.

INSECT NOTES

(Continued from page 4)

ond brood will come. In the next spray plan to clean up green aphids on all non-bearing trees. Maggot flies are emerging slowly but are active around unsprayed trees. Always check for mites.

First brood corn borer is now through egg laying and hatching. Corn earworm has not been found yet but can be expected in small numbers in early and mid-season corn in southern Connecticut Valley and southeastern Massachusetts.

Moths of the squash vine borer are active. Butternut is the only squash variety not attacked. The stems of all other squashes should be sprayed or dusted.—E. H. Wheeler and C. J. Gilgut.

Armyworm Warnings Sounded in Minnesota

ST. PAUL, MINN.—Numerous scattered reports of armyworm infestations have been received during the week ending July 12 from the West Central and Northwest districts. Plant industry and federal entomologists have checked grain fields in every county in the infested area during the past several days. Their findings indicate that the armyworm infestation apparently is not general, but is spotty. No armyworms were found in many fields examined. Other fields had 8 to 10 per square foot. Most armyworms observed were in the 2nd and 3rd instar or about $\frac{1}{2}$ to $\frac{3}{4}$ inch long. They were found most readily in lodged grain, especially barley and in grassy field margins.

Some fields of grain in Red Lake, Polk, Grant and Wilkin counties have been treated. It is expected that more infestations will come to light and more fields will require treatment as the larvae become larger and the damage becomes more readily observed. Heavy infestations in rye are present in some areas.

Armyworms found in rye are larger than those in wheat, oats and barley, and they are clipping rye heads. Farmers in the infested area are advised to continue checking grain fields carefully for the presence of armyworms during the next week to ten days. If head clipping is observed, immediate treatment is justified, or if counts of six or more armyworms per square foot are obtained.

Cool nights have retarded moth flights of European corn borer and egg deposition in all districts. Further extensive egg deposition is not expected. Following are egg mass and whorl feeding counts per 100 plants: SW 12-88; SC 0-64; SE 0-20; C 0-4; WC 0-8. Indications are that first generation borer populations are considerably under those expected, based on spring density surveys.

English grain aphid populations have declined to non-economic levels in many fields observed and in general it appears that populations have dropped off markedly from that observed during the past two weeks. Predators have increased and are numerous in many fields.

Two-striped grasshopper (*Melanoplus bivittatus*) hatch is nearly completed in West Central and Northwest districts with very few egg pods found that were unhatched. Most of the 'hoppers of this species are in the 1st to 3rd instar with a few 4th present. There are many red-legged grasshopper (*Melanoplus femur-rubrum*) eggs as yet unhatched. They are mostly in the eye-spot stage. The 'hoppers found of this species are mostly in the 1st instar. An occasional adult of the lesser migratory grasshopper (*M. bilituratus* and *M. differentialis*) has been found in some fields. Recent rains have caused a heavy mortality of 'hopper nymphs in some areas. A new aphid species, *Toxoptera viridirubra*, Gillette and Palmer, was taken on Selkirk wheat from the Warren area. This is the first record for the

state and also the first record for this species of wheat, according to Dr. A. A. Granovsky of the University department of entomology, who made the identification.

Canadian Province in Weed Control Attempt

WINNIPEG—Another infestation to hit Manitoba this year is bladder campion which has established itself in nearly four sections of land in the province's southwest corner. While not seriously widespread it is considered serious enough by the provincial department of agriculture to warrant immediate control measures.

The latter involves treatment with chemical herbicides where the weed is found in small scattered patches. Large infestations may be effectively eradicated over a period of 4 to 6 years by adopting a 2-year rotation of intensive cultivation and cropping, authorities said. Bladder campion was a major weed problem across southern Manitoba in the mid-1940's.

Rains in Mid-South Help Crop Picture

MEMPHIS, TENN.—General rains helped most of the crops in the mid-South during the past week. However, extension officials in Arkansas, Mississippi, Missouri and Tennessee said that the rains delayed the cleaning of cotton fields and damaged some of the Mississippi Delta cotton.

The Mississippi agricultural extension service reported that corn looks good, but some damage is being caused by earworms and corn borers. Pastures continued excellent, although in many cases are extremely weedy. Rains brought hay saving to a halt during the week, but expanded usage of hay conditioners in shortening the curing time of the grass and legumes has reduced hay losses.

In Arkansas, such crops as corn, soybeans and rice as well as pastures benefited from the moisture, the agricultural extension service said. Corn prospects were described as good to

excellent in most counties, with much early-planted corn laid by for the year. Rice fields were being drained and fertilized, and condition of soybeans varied considerably—from just coming up to blooming.

In the Pemiscot County, Missouri, territory, some of the earlier varieties of soybeans are podding now and probably will be ready to harvest the latter part of next month.

A general rain throughout west Tennessee helped improve the area's overall crop picture, said H. T. Short, district extension agent at Jackson. Corn is looking good, he pointed out.

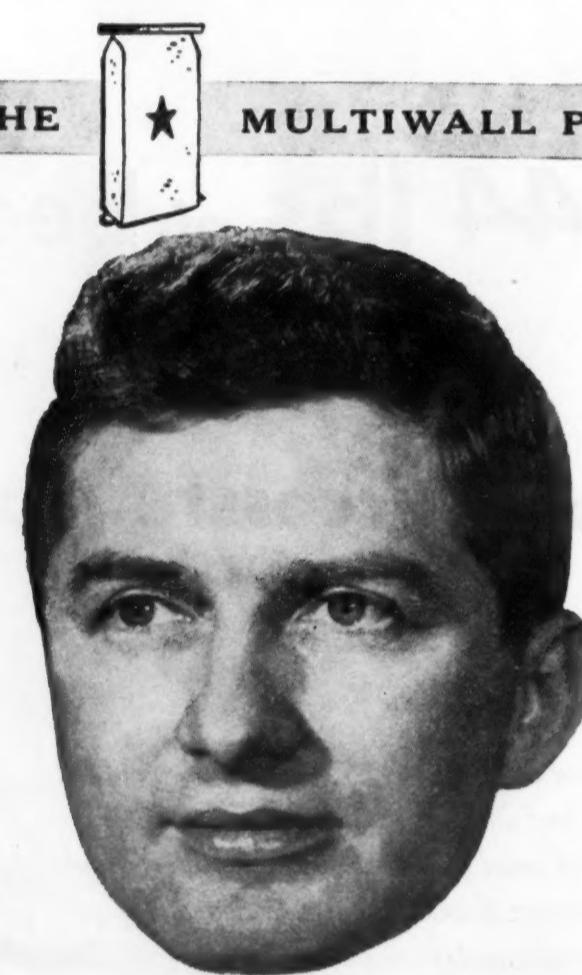
VAN WATERS EXPANSION

PORLAND, ORE.—Scientific Supplies Co., a division of Van Waters and Rogers, Inc., is establishing warehouse operations at 3950 N.W. Yeon Avenue here in conjunction with a present Van Waters operation. Expansion and remodeling now are underway to handle the move, according to Tom Moore, Portland Van Waters manager.

THE MAN WITH THE ★ MULTIWALL PLAN

**UNION
PACKAGING SPECIALIST
WALTER STALER**

**helps
packer
cut his
Multiwall
costs by
\$60,000**



Union Packaging Specialist Walter Staler is an economy expert. His Multiwall customers can vouch for it. One of them—a Midwest packer—recently asked him to analyze his bagging operation. Savings to the company are expected to hit \$60,000 a year!

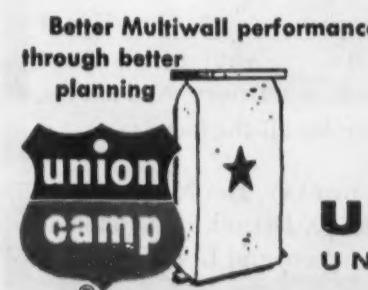
The analysis, made through Union's 5-Star Packaging Efficiency Plan, showed that the basis weight of each bag could be reduced by 20#. Another recommendation: Standardize all Multiwall styles and sizes to improve inventory control and simplify purchasing.

Union Multiwall Recommendations are based on this 5-Star Packaging Efficiency Plan

- DESIGN
- EQUIPMENT
- CONSTRUCTION
- SPECIFICATION CONTROL
- PLANT SURVEY

Union also suggested simplifying bag printing by changing it from two-color on both sides to two-color on one side. And, switching from a full white to a less expensive semi-bleached sheet. These improvements, together with new work and copy created by Union's Art Department, resulted in a more attractive, more economical package.

This \$60,000 savings story is another example of what can happen when Union's 5-Star Plan goes into action. Why not put it to work in your plant?



UNION MULTIWALL BAGS
UNION BAG - CAMP PAPER CORPORATION
233 BROADWAY, NEW YORK 7, N.Y.

UNION'S PACKAGE ENGINEERING DEPARTMENT will study your Multiwall bagging methods and equipment and make appropriate recommendations, regardless of the brand of Multiwalls you are now using.

Industry Patents and Trademarks

2,842,476

Insecticidal Compositions. Patent issued July 8, 1958, to Albert A. Schreiber, Salem, N.Y., assignor to McLaughlin Gormley King Co., Minneapolis, Minn. An anhydrous insecticidal composition comprising, dissolved in a kerosene type mineral oil fraction, a pyrethroid and from about 2 to 10 times its weight of a nitrogen base salt, selected from the group consisting of —NH₂ and amines containing up to 8 carbon atoms, of an alkyl aryl monosulfonic acid, whose alkyl groups contain 6-30 carbon atoms and whose aryl groups are selected from the group consisting of benzene and naphthalene.

2,842,583

Process for Preparing 1,3-bis (dimethylthiocarbamyl - mercaptome-

thyl)-Urea. Patent issued July 8, 1958, to Walter C. Meuly, Mill Creek Hundred, Del., assignor to E. I. duPont de Nemours & Co., Wilmington, Del. A process for producing 1,3-bis (Dimethylthiocarbamyl - mercaptome-thyl)-urea, which comprises reacting together, at 0° to 60° C., in aqueous medium and in essentially stoichiometric proportions, urea, formaldehyde and a reactant of the group consisting of (1) a mixture of carbon disulfide and dimethylamine, (2) a mixture of carbon disulfide and the dimethylammonium salt of dimethyl dithiocarbamic acid, and (3) a mixture of a water-soluble salt of dimethyl dithiocarbamic acid and an acid adapted to liberate dimethyl dithiocarbamic acid from said salt in aqueous medium, and recovering the reaction product.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Ripens Right, in hand-drawn letters, for fertilizer. Filed Jan. 30, 1947, by Weil's Fertilizer Works, Inc., Goldsboro, N.C. First use March 1, 1936.

Farmco, in block capital letters, for fertilizers. Filed Aug. 14, 1957, by Wisconsin Farmco Service Cooperative, Madison, Wis. First use about May 1, 1956.

Tree-Life, in capital letters, for tree food. Filed March 25, 1958, by Frank Samson, doing business as Samson Tree Service, Los Angeles, Cal. First use March 19, 1958.



John C. Bennett

Cyanamid Names John C. Bennett as Sales Manager

NEW YORK—The appointment of John C. Bennett as sales manager of American Cyanamid Company's agricultural division has been announced by F. S. Washburn, division general manager. Mr. Bennett will have charge of field selling organization as it pertains to all areas of agricultural activities. He will also be responsible for sales training.

Mr. Bennett had been in charge of Cyanamid's phosphates sales for the past 12 years. He took courses in industrial engineering and industrial management at Purdue University, and is a graduate of the management course, Graduate School of Commerce, Northwestern University. During World War II he served as a major in the Chemical Corps of the U.S. Army and joined Cyanamid upon termination of his military assignment in 1946.

Fertilizer on Soybeans Returns Profit of \$12

MORRIS, MINN.—Four dollars' worth of phosphate fertilizer can boost net profit from soybeans by as much as \$12 per acre in west central Minnesota. That statement was made by A. C. Caldwell, University of Minnesota soils scientist, during the annual field day at the West Central Experiment Station, Morris.

This gain from fertilizing, Dr. Caldwell said, was possible in Morris station experiments despite high yields where no fertilizer was used. He said soybeans without fertilizer yielded 36 bu. per acre in recent field tests. But adding 40 lb. phosphate per acre increased the yield by 7.3 bu.

The phosphate fertilizer cost about \$4 and the 7.3 extra bushels of soybeans were worth almost \$16. This left an increased net return of \$12 per acre.

These tests had been conducted in cooperation with Roy Thompson, station agronomist.

Similar experiments showed phosphate was also the most important nutrient needed for alfalfa in this region, according to Dr. Caldwell. Eighty pounds of phosphate per acre boosted first cutting alfalfa yields last year by .72 ton per acre. Adding either nitrogen or potash alone to alfalfa actually reduced yields in this area.

As phosphate was most important for legumes, so was nitrogen most important on corn in Morris tests. Dr. Caldwell said 160 lb. nitrogen alone per acre on continuous corn boosted yields by 32 bu. per acre in 1957. Adding potash and phosphate in addition to nitrogen was even better. Fields receiving a "complete" fertilizer produced almost 50 bu. per acre more than did unfertilized fields.

44 lbs of beef & veal

for everybody in the U.S.

from **Successful Farming** farms!

The United States in 1957 produced 14,300 million lbs of beef and 1,575 million lbs of veal . . . per capita consumed 83.8 lbs of beef and 9 lbs of veal. SUCCESSFUL FARMING farms account for almost half of all cattle and calves sold—annually equivalent to approximately 44 lbs of beef and veal on the plates of everybody in the US!

To keep the US the best fed country in the world takes enormous feed crops, the richest land, and constant replenishment of the soil—a prime responsibility of the world's greatest foodstuffs producers, the SUCCESSFUL FARMING audience.

The nation's best farmers are SUCCESSFUL FARMING subscribers. They spend readily for anything that raises output, increases

efficiency, conserves and expands capital—are big buyers of commercial fertilizer.

SF's circulation policy is selective—its distribution concentrates among the 44% of the nation's farmers getting 91% of US cash farm income—and SF has the highest percentage of on-farm circulation of any major farm magazine.

With big farms averaging 366 acres in '57 (up from 218 acres in '45), SUCCESSFUL FARMING farmers have money and means. Last year the estimated average annual cash farm income, from farming alone, of SUCCESSFUL FARMING farm subscribers reached \$10,870, the highest on record!

No other publication can match SF's influence with its audience. It has prestige and respect based on 56 years of service, helping readers achieve larger production, greater earnings, higher living standards. And SF in the rich farm market gives balance to any list of urban magazines!

For more fertilizer sales—make SF your first choice! Ask any of your dealers about SF influence in their territory. And ask the nearest SF office for all the facts.

MEREDITH PUBLISHING COMPANY, Des Moines . . . with offices in New York, Chicago, Detroit, Philadelphia, Cleveland, Atlanta, San Francisco, and Los Angeles.



MISSOURI SPECIALIST SAYS . . .

Soil Deficiencies May Be Corrected Through Testing And Fertilizer Application

IN Missouri, an increasing amount of fertilizer use, including limestone, is guided by soil tests made in one of the 102 county soil testing laboratories. These laboratories are supervised by county extension agents and the tests interpreted by them.

The philosophy of using soil treatments in Missouri is to apply plant food in adequate quantities to remove deficiencies of plant nutrients as a limiting factor of production without regard to the crop to be grown. If the yields are limited or not up to par, some limitation other than fertility will prevail.

In general, there is no set time or season that is best as far as the application of plant food is concerned. Of course soil conditions need to be in shape to get the job done. It makes no difference even though the treatments are being applied several months ahead of the crop to be grown. The only exception is where nitrogen is being applied to very sandy soil. It is best to use part or all of the nitrogen at seeding time or part later as a top dressing application rather than use it too far ahead of the crop's need.

Limestone to supply calcium and sometimes magnesium in addition to calcium as well as provide a more desirable soil reaction; phosphate (either rock or processed), and potash to correct deficiencies, are all generally most effective in providing more adequate nutrition when broadcast or drilled on the surface, and thoroughly plowed under to a depth of 7 to 10 inches. Liberal nitrogen rates may likewise be plowed down along with the mineral treatments or drilled in with the seedlings or used at a later date as a broadcast application or injected as anhydrous ammonia.

In other words, if mineral treatments and nitrogen are plowed down they must be applied sometime ahead of the fall seeding time. And when field work has slackened off is a good time to use treatments, especially in fields with small grain already harvested. Plowing can then proceed and very likely a better seedbed prepared.

There is of course a real need for a starter containing nitrogen, phosphate and potash with fall seedings of alfalfa, grass-legume mixtures, and small grains. It simply gets the seedlings off to a better start to go through the winter more successfully, but the real push in getting vigorous, productive stands that will yield well the next year is the corrective soil fertility treatments plowed down from a few weeks to several months ahead of actual seeding. If the yield doesn't turn out right it will be limited by factors other than fertility.

A good example is the 3 ton an acre yield of alfalfa the first year after seeding where liberal nitrogen was applied at seeding time the fall before, to soil well supplied with mineral nutrients. These kinds of results are being secured by farmers in Missouri.

Certainly off-season use of soil treatments is not confined to summer applications in fields to go to fall seeded crops. Many small grain fields and of course soybean fields will go to row crop next year. After harvesting, there is an excellent opportunity to use limestone, nitrogen, phosphate

and potash, guided by soil tests of course, to be plowed down with the small grain or soybean straw in preparation for the row crop the following year.

The soil is one of the basic resources in the farm business. It has a certain productive potential which in most cases is far beyond present realization as far as grain or forage yields are concerned. High acre yields mean lower unit

cost of production be it measured in bushels of grain, tons of roughage, hundredweights of meat or milk.

In Missouri, county agents and soil specialists recommend the use of soil treatments to correct fertility deficiencies of the soil. The crop is considered in arriving at nitrogen and potash application rates. There is a great deal of merit in the use of all corrective plant nutrients including nitrogen during a season when farm field work is not pressing. This may be the period following small grain harvest but ahead of the time to handle row crops. And the most effective guide for profitable soil treatment use in Missouri is soil testing.

Mice Outbreak Sweeps Area in California

SACRAMENTO—A new and more serious infestation of field mice than

CROPLIFE, July 21, 1958—19

the one which cost farmers an estimated \$5,000,000 in crop damage last year is sweeping the southern part of the Tulelake Basin in northern California.

Ken Baghott, Tulelake farm adviser, said that colonization of the rodents has increased materially and thousands of the pests are moving from infested to clean fields.

He reported the heaviest invasion has been in thousands of acres of Hannchen barley crops, alfalfa fields and blue grass being grown for seed. Last year potatoes suffered the greatest damage.

HEADS EXTENSION SERVICE

AMHERST, MASS.—Dr. Dale H. Sieling, dean of the College of Agriculture and director of the Agricultural Experiment Station at the University of Massachusetts, has been appointed director of the Cooperative Extension Service.

Choose
the most ECONOMICAL
SOURCE of BORON
for your requirements...

If your need is this

- MIXED FERTILIZERS
- 1. Complete Fertilizers
- 2. Granulated Fertilizers
- 3. Granular Blends

- LIQUID FERTILIZERS
- or
- FOLIAGE APPLICATIONS

Team up with this

- FERTILIZER BORATE-65 Concentrated or
- FERTILIZER BORATE-46 High Grade
- SOLUBOR® (POLYBOR-2)® or
- BORAX FINE GRANULAR

United States Borax & Chemical Corporation

UNITED STATES POTASH COMPANY DIVISION
NEW YORK CITY • LOS ANGELES, CALIFORNIA

Agricultural Offices:

AUBURN, ALABAMA • 1st National Bank Bldg.
KNOXVILLE, TENN. • 6105 Keywood Drive
PORTLAND, OREGON • 1504 N.W. Johnson St.

BANKERS

(Continued from page 1)

terest of the two has become increasingly apparent. The modern farmer no longer feels ill-at-ease in entering the bank. The banker no longer views him with doubt.

The man in the bank knows full well that here in the great Midwest, primary dependence rests on agriculture. He no longer divides his customers into "farmers and businessmen," because he knows that modern farming calls for business ability of the highest order.

One Southern Minnesota banker expressed it well when he said, "When a new establishment involving \$50,000 capital comes to our town, we are greatly elated at the progress we are making. Too often we take for granted the many businesses of that size or larger we have in our farms." How true, because a modern farm may call for \$50,000, \$75,000, or \$100,000 or more.

Bankers need not be reminded that farming has become increasingly commercial as the years have gone by. The farmer no longer raises his power—he buys it. Instead of selecting his seed corn in the field, he buys hybrid seed. He is a good customer of the chemical industry as a buyer of fertilizers and pest controls. Livestock feeding calls for purchased feed supplements.

Tractors, combines, corn pickers, hay balers, milking machines, and a growing list of other equipment replace drudgery on human beings and reduce drudgery. While they add to farm returns, they also increase capital requirements. As proclaimed by the advertising slogan, they indeed make the farmer a "bigger man" who not only can but must operate on a larger scale.

Technology and mechanization with increased "know-how" on the part of the farmer make it possible for the modern farmer to provide products for himself and 20 others. A century ago it was only three or four. Output per man-hour has doubled since 1940, attesting to the fact that we are indeed in the midst of an agricultural revolution.

Some pessimists bemoan this change. They foresee an end to the "family farm." This is not the case. The farmer of today actually is less dependent on hired labor than was the case a few years ago. The typical

farm is more of a family unit than ever. The change is in the direction of progress, leading to better farming and better living for farm people.

But what does the change mean to rural trade centers? It calls for adaptation of such centers and their services to changing needs. Whether a town "grows or dies" depends in no small measure on its ability and willingness to adapt to those changes. Perhaps it is not amiss to suggest that rural trade centers exist to serve the community, rather than the other way around. It is up to them to aid progress, not to insist that farmers shall forego progress because of the changes it requires.

Bankers and other financial agencies have played a role in aiding farm progress by adapting lending and other services to changing needs. The old notion that debt was a pestilence to be shunned by farmers has undergone a transformation. The idea had merit and still has, where debt for consumption purposes is permitted to outrun ability to carry. However, that does not describe a typical farm loan made for production purposes.

The basic test of farm loans today is ability to repay. That ability comes from the returns which the use of the borrowed capital yields in farming. When these returns exceed costs, borrowing is profitable. Such financing is of mutual benefit to farmer and banker. No wonder that good working relations exist among good farmers and good country bankers.

Because of the need for liquidity in commercial banks, they operate mainly in short-term loans. Real estate loans used to be considered as unsuited to banks, but with improved operations, added provisions relating to reserves, and better management and supervision a moderate volume of mortgage lending has been found acceptable. The terms of commercial loans have been found too short to fit the needs of agriculture with its relatively slow turnover and dependence on seasonal returns and banks have found it possible to adapt their operations to fit these conditions more adequately.

Some of the modern farm machinery and equipment involve the investment of sizable amounts. It is unrealistic to expect that the purchase price can be repaid from the proceeds of one year's crop.

The same is true of some other needs as, for instance, the building-up of a herd of livestock. If the farmer delays these outlays until he has saved all or most of the amounts needed, he deprives himself of their use and the contributions they could make to his farm income in the interim. This has led to the making of some intermedi-

ate-term loans, running for three years or more, depending on circumstances.

Good judgment and careful appraisal of the factors involved enable the making of such loans to farmers with safety to the bank and its depositors. Such loans will necessarily continue to be on a highly selective basis and will not become a major part of the bank's loan portfolio. They call for careful planning and scheduling of repayments. Some bankers who shrink from term commitments of this sort on the grounds that they lack liquidity contend that they attain the same objective by loan renewals.

Farmer borrowers may be less happy over the latter unless they involve specific extensions which they can rely on in making their plans. They suggest with considerable point to their contention that if a loan is to be extended eventually, why not provide definiteness to the arrangements, rather than to leave the decision to the caprice and preference of the lender?

Some of the rural bankers of old may have taken the slogan "ask your banker" too literally, at times, and assumed that they knew more about farming than did the farmer seeking a loan. That day is past. Farming now is too complex for that. The modern farmer is faced with a host of problems calling for decisions. He needs to know a lot about a wide range of things in order to make the right choice often enough to succeed.

The banker can help very decidedly with those involving the use of capital and credit. The modern country banker finds that he needs to know a lot about farming, not to enable him to tell the farmer customer how to farm, but to enable him to perform the banking service expected of him.

The importance of understanding farm operating problems and keeping up with ever-changing technology and progress is leading more and more banks to add to their staff, men with practical farm experience and technical training to have a responsible part in providing patrons with adequate banking service. Those banks which are not in a position to add specially trained agricultural men find it advantageous to have one or more of the present officers assume this responsibility by equipping themselves for this assignment to the fullest extent possible.

An illustration of closer farmer-banker relationships is found in some banks which include on their board of directors one or more successful farmers on whom they can rely for assistance in the program of serving agriculture.

What lies ahead? The surest answer to this question is "change." Farming will remain dynamic and farmers will continue alert to accepting and making changes in the directions of progress. Such changes should be welcomed, not resisted. The challenge this presents to bankers is to keep abreast of changes and to do their part in providing progress in the service of banks to farmers. This is the route to success for both.

growing fresh fruits and vegetables over a broad section of the country, and the added confusion of keeping records on given products in the nation's distribution pattern. Because of these considerations, plus the fact that under the Miller amendment, tolerances are set for produce before it reaches the market, the committee reported on the bill that the labeling requirement is "impractical" so far as produce is concerned.

Pesticide trade people have expressed themselves as being gratified at the ruling, along with the fruit and vegetable industry, which would have experienced a heavy burden should they be obliged to carry complete pesticide spray information on labels.

Export Price Boost

NEW YORK—Prices of technical grade DDT for export have been increased one cent per pound, it has been announced by the Chemicals International division of Olin Mathieson Chemical Corp. The increase, applicable to the powder and flake or coarse grind material, was effective July 1. The new price for the powder is 23¢ lb. The new price for coarse grind is 22¢ lb. Orders for less than truckload quantities of 23,000 lb. are sold at the usual 1¢ lb. premium. Material packed in 200 lb. fiber drums is also sold at a 1¢ lb. premium.

Miss Urea Models Sack With Swept Wing

MEMPHIS—A combination of a urea bag, scissors, salesmanship and a courageous secretary added up to an effective publicity gimmick for the Grace Chemical Co.

John G. Carriere, vice president and plant manager of the Grace plant here, decided that the judicious use of the scissors on the bag could produce a new entry in the fashion field—the new look, the sack dress with swept wings.

Once the garment was created ("We used one of the more expensive sacks, costing 50¢," Mr. Carriere said), Grace officials persuaded a secretary, Mrs. Angelyn Puckett, to be photographed in the new garment. She was promptly named Miss Urea.

The picture and an accompanying story appeared in the Memphis Commercial Appeal. In the story Mr. Carriere pointed out that the plant could provide the basic portion of the new dress for 3,000 women every day. This is the average number of 100 lb. sacks of urea produced daily.



FOOD LABELS

(Continued from page 1)

is harvested, the material so used must comply with the requirements of the Miller amendment to the federal act and must be within the tolerance limits set for that crop and that chemical at harvest time.

Chemicals applied to produce after harvest are regarded as preservatives and in order to comply with the law, must be labeled to indicate to the buyer that product has been thus treated.

Should this law apply to pesticides applied before harvest and having no residues, enforcement would be difficult to an extreme degree, committee members said. This would be due to the vast scope and complexity of

REMEMBER TO ORDER
CHASE BAGS
There's None Better!

USE
Field Master
SPRAY EQUIPMENT
for
LOW COST APPLICATION of fertilizer—Insecticides—weedicides.
Your biggest low-price sprayer value. High in quality—above the average in performance. Field Master Sprayers available as complete units or as separate kits: Trailer, Boom Assembly, Boomless Kit, Pump Box, Tank, etc. Write for Free Colorful Field Master brochure.

The Brophy Company — Dakota City, Nebraska

SAFETY MEETING

(Continued from page 1)

ment of Labor, State of North Carolina, will talk on "Accident Investigation," and Albert Martin, director of industrial relations, adding machine division, National Cash Register Co. on "Safety Education and Training."

"Safe Use of Liquid Materials in a Fertilizer Mixing Program" by Elmer Perrine, technical advisor, Allied Chemical Corp. and "Fertilizer Insecticide Mixtures" by John S. Mark, production manager, Farm Bureau Co-op Assn. of Ohio, will round out the afternoon's program. At the dinner in faculty lounge, Statler Hall, "New York State's Approach to Accident Prevention" will be discussed.

The program of Friday, Aug. 15 is planned as follows: "Safety Organization," by Albert Martin, National Cash Register Co.; "Materials Handling and Storage," by Jacob Gold, safety consultant, U.S. Department of Labor; "Housekeeping," E. O. Burroughs, Jr., F. S. Royster Guano Co.; and "Developing a Workable Formal Safety Program for the Small Mixing Plant," by Carl Gillmeister, assistant production manager, G.L.F. Soil Building Service.

The headquarters for the Ithaca, N.Y., school will be in Statler Hall with registration beginning at 8:30 a.m., on Aug. 14, Mr. Truitt said. The fee will be \$20 a person, covering two luncheons, one reception and dinner, he said.

Mr. Truitt announced that W. C. Creel, safety director, North Carolina Department of Labor, Raleigh, will be in charge of instruction for the schools. Teaching materials will be furnished by the National Safety Council, U.S. Department of Labor, and the Bureau of Labor Standards. Subject matter will include a clinic on current problems brought up by those attending and such broad areas as safety organization, materials handling and storage, housekeeping, and educational and training programs.

Mr. Creel will be assisted by expert safety men from the industry, from the universities and from the National Safety Council.

Regional directors of the Institute cooperating in promoting the schools include: Dr. W. H. Garman for the Northeast Region; Dr. Samuel L. Tisdale for the Southeast Region; Zenas Beers, for the Midwest Region; Dr. Robert L. Beacher, for the Southwest Region; Dr. Richard B. Bahme for the Western Region; and F. Todd Tremblay for the Pacific Northwest Region.

The four other schools with names of representatives of the Fertilizer Section, National Safety Council, in charge are:

1. Atlanta, Ga., Quentin S. Lee, The Cotton Producers Assn., Atlanta, Ga.
2. Chicago, Ill., John E. Smith, Spencer Chemical Co., Pittsburgh, Kansas.
3. Austin, Texas, A. I. Raney, Phillips Chemical Co., Bartlesville, Okla.
4. San Francisco, Cal. (Tentative chairman to be named later).

RECOMMENDATIONS

(Continued from page 8)

corn, grasses and legumes is an acceptable practice in that state. He adds, however, that precautions should be taken to prevent loss of fertilizer by run-off water or wind erosion. So far as the crop response for either fall or spring application, it is approximately the same, he says.

Indiana Okays Fall Use

UNDER certain conditions, the Indiana Agricultural station at Purdue University, Lafayette, Ind., recommends the application of fertilizers in the fall of year. According to Cliff Spies, extension agronomist at Purdue, the advantages to fall

application of fertilizer include the following:

1. Greater selection of grades and ratios in buying bagged goods.
2. Provides use for available labor and machinery during slack periods.
3. Soil is drier and supports heavy application equipment better than when the soil is wet in the springtime.

The experiment station, in a bulletin on fertilizer recommendations, states that when fertilizing corn, nitrogen should be placed at least four to six inches deep so that it is in moist soil. It may be applied broadcast and plowed under or placed in the plow furrow. It may also be placed in the seed bed before planting or side-dressed midway between the rows anytime after planting until the corn is 18 inches high.

On fully drained silt loams or heavier texture soils, nitrogen may be applied in the fall. However, on sands and sandy loams, it is better to wait until spring, the bulletin says.

Another Purdue bulletin, issued early in 1958, describes the results of testing various types of nitrogen and times of application on the production of wheat. As noted earlier, on well drained, slightly acid soils some nitrogen loss was observed through the winter months. It is also stated that nitrogen applied in the ammonium form is much less susceptible to leaching than is nitrogen applied in nitrate form.

"These experiments offer further evidence that ammonia nitrogen is held on the clay particles in soils, whereas nitrate nitrogen moves with the soil water and can be lost by leaching," the bulletin says.

Off season fertilization of blue grass pastures offers a very large off season fertilizer use, according to Dr. Proctor W. Gull, Spencer Chemical Co. agronomist, Kansas City, Mo. "Grass is an unawakened sleeping giant as a potential fertilizer user in northern U.S.," he says. This potential is great because of the following reasons, according to Dr. Gull:

1. Blue grass pasture acreage is large.
2. Blue grass responds well to fertilizer.
3. Quality of fertilized blue grass forage is excellent.
4. This is primarily a dairy area furnishing an excellent outlet for quality forage.
5. High rates of fertilizer can be utilized. 250 lb. of N an acre and at least 100 lb. an acre of P₂O₅ and K₂O may be utilized.

Drawbacks outlined by Dr. Gull were as follows:

1. Proper management for full utilization of optimum production is not yet fully understood.
2. Adequate economics have not as yet been worked out whereby this is compared with conventional renovation.
3. Much education is still required at academic, promotion and utilization levels.

Soybeans can utilize a generous supply of nitrogen in the midseason, according to Dr. U. S. Jones of Olin Mathieson Chemical Corp. In the midseason period about the time of flowering, the soybean plant can utilize a generous supply of nitrogen. Additional amounts supplied at that time in the form of fertilizer may give significant yield increases, he says. This has been the case in a considerable number of experiments on a wide range of soils.

Application in Minnesota

THE University of Minnesota, St. Paul, recommends that where land is to be fall plowed, fall applications of phosphate and potash are satisfactory. "In regard to nitrogen, we would recommend 30 lb. nitrogen in fall application on corn

stalk land which will be going back into corn the following year," according to Ernest J. Overdahl, extension specialist in soils at the University. "This upper limit is based on areas in Minnesota which have a rainfall above 25 in.," he adds. For other areas in the state, the university says that fall applications of the entire amount of nitrogen may be satisfactory if it seems necessary that a farmer do it this way.

Even in the drier areas, research indicates that there is slightly lower crop response from nitrogen which has been applied in the fall as compared to spring applications. Research also indicates further that where nitrogen is applied in June, the response is better for corn than when applied in April, on sandy soils.

Corn stalks being plowed down which have received liberal applications of nitrogen, such as 100 lb. an acre of actual N, will usually contain satisfactory amounts of nitrogen within the stalk to carry out its decomposition. Usually, stalks which contain over 1½% of nitrogen contain sufficient quantities for its decomposition, Mr. Overdahl says.

Chemical Employment Rises in California

SAN FRANCISCO—Employment in chemical manufacturing plants in California crept up a fractional half per cent between April and May of this year, reports the division of labor statistics and research of the California State Department of Industrial Relations.

An estimated 37,700 wage and salary workers were employed in the producing of all kinds of chemicals during May as compared with 37,500 the previous month, and 38,800 in May of 1957. It was the first rise in employment in several months.

The production worker segment earned money at a slightly faster rate, according to estimates by the division. Average earnings were \$2.45 an hour during May, as compared with \$2.44 in April and \$2.34 in May last year. The work week was almost the same on the average—up to 41.0 hours in May, and 40.9 hours the previous May.

Average weekly earnings this year broke \$100 for the first time—estimated to be \$100.66 during May, and \$98.93 in April.

Mr. Dealer: Here are 2 great new chemicals to control tough problem weeds

FEATURE THEM FOR FALL—AND FOR PROFIT!

WEEDAZOL for CANADA THISTLE

The original amino triazole weed killer, pioneered and patented by us, is now proved to be one of the most deadly and selective weed killers so far developed. Because of its deep penetration, it kills completely. Especially recommended to control Canada thistle—which resists so many other chemicals—Weedazol also kills cattails, sow thistle and whitetop.

BENZAC for BINDWEED

This brand-new weed killer is proving its effectiveness in clearing roadsides, rights-of-way and fencerows of otherwise highly resistant bindweed, as well as leafy spurge, Russian knapweed, bur ragweed and tenacious woody vines, thus keeping them out of fields and croplands.

These are volume sales-makers for you. Be sure you have these 2 products—Weedazol and Benzac—ready for the fall season. Order now, if you haven't already stocked up. Push them and profit! If you are not already selling Amchem Products, this is your chance to start off with a bang!

WEEDAZOL and BENZAC are registered trademarks of AMCHEM PRODUCTS, Inc.

AMCHEM **PRODUCTS, Inc.**
Formerly AMERICAN CHEMICAL PAINT CO.
Agricultural Chemicals Division

ST. JOSEPH, MO. AMBLER, PA. NILES, CALIF.

Originators of 2,4-D, 2,4,5-T and Amino Triazole Weed Killers

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Midwestern states.

Five Regional Short Courses on Safety to Provide "Know-How" for Fertilizer Makers

ONE area of industrial activity, where constant vigilance is a most important ingredient, is in the field of safety. The fertilizer manufacturing industry has made notable strides in the improvement of its safety record during the past few years, but everyone knows that perfection is still some little distance ahead. Safety promotion is a peculiar thing. It is both a matter of education and a state of mind. It is achieved only after frequent reminders have been given and then only when a healthful attitude toward safety is shown.

The five regional accident prevention schools being sponsored by the fertilizer section of the National Safety Council and the National Plant Food Institute will certainly leave their mark on the industry's consciousness. Fertilizer firms located in the areas, where the two-day meetings are to be held, are urged to send representatives to the sessions to hear the talks, rub elbows with safety experts of long experience in the fertilizer manufacturing trade, and to become more conscious of the importance of safety in every plant regardless of its size.

Attending the meetings will be not only production personnel and safety engineers, but also company officers who will be interested in the dollars-and-cents aspects of safety.

Paul T. Truitt, executive vice president of the NPFI, commented recently: "There is today an urgent need to reduce all costs throughout the fertilizer industry. These safety schools are designed to cut the industrial accident rate and to conserve resources. Participation in these schools by all manufacturers in the industry is indeed warranted."

In charge of instruction for the schools will be

W. C. Creel, safety director of the North Carolina State Department of Labor, an old hand at preaching the cause of safety. He has held his present position since 1946, and has participated in many additional safety enterprises beyond his state borders, being a member of the President's Conference on industrial safety since it was organized in 1949.

Not only Billy Creel, but other well-qualified speakers are scheduled to appear on the programs of the five schools. Subjects are not all directed to the large plant, either. For instance, Carl Gillmeister, assistant production manager of the GLF Soil-Building Service, will speak on "Developing a Workable Formal Safety Program for the Small Mixing Plant," and Elmer Perrine of Nitrogen Division will discuss "Safe Use of Liquid Materials in a Fertilizer Mixing Program," to name only a couple from a roster of many.

The first of the five scheduled meetings will be held at Statler Hall, Cornell University, Ithaca, N.Y., Aug. 14-15. Subsequent meetings, at dates to be announced later, will be held in Atlanta, Chicago, Austin, Texas, and San Francisco.

A good safety record is in keeping with the fertilizer industry's reaching adulthood. No longer a simple process, the making of modern plant food products is of necessity complex and in some portions with elements of danger. However, with adequate know-how, all of the hazards can be kept under complete control and harmless.

Much of this needed "know-how" can be obtained at the five schools coming up.

REQUESTS HIT HOME . . .

Ag. Agent's Constituent Wants Service

COUNTY agents and extension workers are accustomed to receiving requests for various types of information and services, but Charles Gulley, Fayette County (Ky.) agent, took a second look at a request which arrived in the morning mail the other day.

A lady describing herself as "what you might call a widow—every day except Sunday—and sometimes my husband works on Sunday too," had quite a list of complaints to unload on the county agent.

"I have some kind of grass in my front yard that isn't supposed to be there," she wrote. "Would you please come out and dig it up for me? Secondly, my hollyhocks are suffering from something. Could you spray them? The gate is completely off, so bring your hammer and nails."

"I realize that your field is outside the house, but since my husband won't help, maybe you can help there also. For any of these services I am prepared to pay you."

"My ironer is torn up. My husband has known

about this for a year—but that doesn't seem to help. The doorknob is completely off the closet door. The kitchen baseboard needs gluing back. The Venetian blinds need gluing together. My son's tractor seat needs some work . . .

You have been praised very highly for giving unselfishly of your time. I do hope you will see your way clear to giving me an afternoon of your precious time.

"P.S.: It is now raining and the roof leaks."

Mr. Gulley read the letter and gulped, "Even she's caught me at the office."

The letter was signed by Mrs. Gulley.

The farm agent allowed he's going to take a few afternoons and handle the chores. He's still trying, he said, to think of a suitable retort.

Quote of the Week

What business needs today is fewer orders from politicians and more from customers.—National Association of Manufacturers.



Croplife's Home Office

Croplife



Member of Business Publications Audit

Member of National Business Publications

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

EDITORIAL STAFF — John Cipperly, Washington Correspondent; George E. Swarbrick, Canadian and Overseas Editor; Emmet J. Hoffman, Marketing Editor; Duane F. McKenzie, Research Director.

ADVERTISING STAFF — Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager; R. Dale Swenson, Promotion Manager.

BUSINESS STAFF — Martin E. Newell, Chairman of the Board of Directors; Milton B. Kihlstrom, President and Treasurer; Wilfred E. Lingren, Executive Vice President; Don E. Rogers, Vice President; Paul L. Dittmore, Vice President; Donald Neth, Secretary; T. A. Gaden, Circulation Manager; James G. Patridge, Assistant Treasurer; Richard Ostlund, Office Manager; Walter O. Buchkosky, Production Superintendent.

BRANCH OFFICES

EASTERN STATES — Paul L. Dittmore, Manager; James W. Miller and George W. Potts, Advertising Sales Representatives; Suite 3214, 551 Fifth Ave., New York 17, N.Y. (Tel. Murray Hill 2-2185).

CENTRAL STATES — Don E. Rogers, Manager; Henry S. French, Assistant Manager; Amos W. Standish, Advertising Sales Representative; 2832 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill. (Tel. Harrison 7-6782).

SOUTHWEST — Martin E. Newell, Manager; Thomas E. Letch, Assistant Manager; 512 Board of Trade Bldg., Kansas City 5, Mo. (Tel. Victor 2-1350).

NORTHWEST — Paul A. Anderson, Advertising Sales Representative, P.O. Box 67, Minneapolis 40, Minn. (Tel. Franklin 4-5200).

WASHINGTON CORRESPONDENT — John Cipperly, 604 Hibbs Bldg., Washington, D. C. (Tel. Republic 7-8534).

EXECUTIVE AND EDITORIAL OFFICES — 2501 Wayzata Blvd., Minneapolis, Minn. Tel. Franklin 4-5200. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

Published by
THE MILLER PUBLISHING CO.
2501 Wayzata Blvd., Minneapolis, Minn.
(Address Mail to P. O. Box 67, Minneapolis 40, Minn.)



Associated Publications — The Northwestern Miller, The American Baker, Farm Store Merchandising, Feedstuffs, Milling Production.

MEETING MEMOS

Sept. 15-17—Canadian Agricultural Chemicals Assn., Sixth Annual Meeting, Fort Garry Hotel, Winnipeg, Manitoba.

Nov. 5-7—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C.

Meeting Memos listed above are being listed in this department this week for the first time.

July 24—West Virginia University Agronomy Field Day, Ohio Valley Experiment Station, Point Pleasant, W.Va.

July 24—Colorado State University Field Day, San Juan Basin Ranch Station, Hesperus, Colo.

July 25—Colorado State University Field Day, Western Slope Branch Station, Austin, Colo.

July 27-29—New Mexico Grain and Feed Dealers Assn., Summer Meeting, Hotel Clovis, Clovis, N.M.; Parley Jensen, P.O. Box 616, Albuquerque, N.M., Assistant Secretary.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 4—National Joint Committee on Fertilizer Application, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 4-8—American Society of Agronomy, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 12-13—Ohio Pesticide Institute, Summer Field Tour, Ohio Agricultural Experiment Station, Wooster, Ohio; J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Institute Secretary.

Aug. 12-14—Beltsville Cotton Mechanization Conference, Civic Auditorium, Brownsville, Texas; Sponsored by the National Cotton Council.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chem-

ical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Oct. 30—Annual Southeastern Soil Fertility Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 10-11—Agricultural Aviation Research Conference, Milwaukee.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-4—North Central Weed Control Conference, Netherland Hilton Hotel, Cincinnati.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

July 7-9—Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conference, Tacoma, Wash.

AERIAL APPLICATOR KILLED

SANTA ROSA, TEXAS—Richard Oliver, 28, airplane applicator of McAllen, died in a Harlingen hospital following a crash of his dusting plane near here. He had just finished a turn row when his plane flew into a wire, bounced off onto another wire and finally hit the ground. The plane was wrecked but did not catch fire. His was the second aerial applicator death within a week in the Lower Rio Grande Valley.

CALENDAR FOR 1958-59

JULY							AUGUST							SEPTEMBER							OCTOBER																			
S	M	T	W	T	F	S	S	M	T	W	F	S	S	M	T	W	F	S	S	M	T	W	F	S	S	M	T													
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3												
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10												
20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18											
27	28	29	30	31																																				
NOVEMBER							DECEMBER							JANUARY							FEBRUARY							MARCH												
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3								
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10								
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18							
23	24	25	26	27	28	29	30	31																																
APRIL							MAY							JUNE							JULY							AUGUST												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3							
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10							
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18						
22	23	24	25	26	27	28	29	30	31																															

Olin Mathieson and Sun Oil to Build New Urea Facilities

PHILADELPHIA—Olin Mathieson Chemical Corp. and Sun Oil Co. have exchanged letters of intent to form a joint company to build and operate a 73,000 ton-a-year urea plant, Stanley deJ. Osborne and Robert G. Dunlop, respective presidents of the two companies, have announced.

The proposed urea plant will be built at Marcus Hook, Pa., where Sun Oil has one of the largest refineries in the country, including a 300 ton-a-day ammonia plant.

Details regarding the organization and operation of the new company and construction of the plant will be announced when they are finalized.

Grape Day Set for California Groups

DAVIS, CAL.—Seventh annual Grape Day is set for Thursday, Aug. 21, in the vineyards on the Davis campus of the University of California. The field day for grape growers and shippers, raisin producers, and winery operators will feature discussions of gibberellins on grapes, boron deficiency, sulfur dioxide for table grapes, red spider control, and preservation of grape stakes. Registration will begin at 9:30 a.m., with adjournment scheduled for about 3:30 p.m.

Featured speaker at the luncheon provided in the vineyard will be Don W. McCollum, president of the Wine Institute. Other speakers of the day will be members of the research and teaching staff in the Department of Viticulture and Enology on the Davis campus.

Rockland Chemical Names New England Agent

WEST CALDWELL, N.J.—Rockland Chemical Co., Inc., West Caldwell, N.J., has announced the ap-

pointment of the feeds division of H. P. Hood & Sons, Boston, as its direct sales agent in the New England area. The division will handle Rockland's products for mastitis, its fly control products, and its lawn and garden insecticides and herbicides.

Hood sales agents who will represent the Rockland line are William H. Aston, 15 Nursery St., Beverly, Mass.; Dennis Michaud, 85 Dow Ave., Lewiston, Maine, and Italo G. Federici, 5 Randall Ave., North Providence, R.I.

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

INDEX OF ADVERTISERS

Allied Chemical Corp., Nitrogen Div.	21
Amchem Products, Inc.	21
American Potash & Chemical Corp.	18
Ancor Manufacturing & Supply Co.	18
Armour Fertilizer Works	14
Baker, H. J.	20
Baughman Manufacturing Co., Inc.	20
Bemis Bro. Bag Co.	20
Blue, John, Co.	20
Bradley & Baker	20
Broyhill Company, The	20
Burgess Publishing Co.	20
Chase Bag Co.	20
Chemagro Corp.	20
Chemical Eng. Serv. Div. of Manitowoc Shipbuilding, Inc.	20
Chemical Insecticide Corp.	20
Clover Chemical Co.	20
College Science Publishers	20
Collier Carbon & Chemical Corp.	20
Commercial Solvents Corp.	20
Consolidated Mining & Smelting Co.	20
Crown Zellerbach Corp.	20
Dallas Tank Mfg. Co.	20
Davison Chemical Co.	20
Deere, John, & Co.	20



D. A. ROBISHAW
PLANTERS CHEMICAL CORPORATION
NORFOLK, VIRGINIA

Manufacturers and distributors of
insecticides, fungicides, weed killers

What readers say about Croplife

"I read Croplife regularly and find a great deal of information that is important to me in my work. The articles of happenings in other sections of the country help me to better prepare myself for our own particular problems. The publication is also made available to all of our sales personnel and through it I feel they are better prepared and more capable of presenting the advancement of our industry to our customers."



Croplife

EASTERN STATES OFFICE
551 Fifth Ave.
New York 17, N. Y.
Murray Hill 2-2185

CENTRAL STATES OFFICE
141 West Jackson
Chicago 4, Ill.
Harrison 7-0515

SOUTHWESTERN STATES OFFICE
Board of Trade Bldg.
Kansas City 5, Mo.
Victor 2-1350

NORTHWESTERN STATES OFFICE
P. O. Box 67
Minneapolis 40, Minn.
FRanklin 4-5200

2501 Wayzata Blvd.
Minneapolis, Minn.